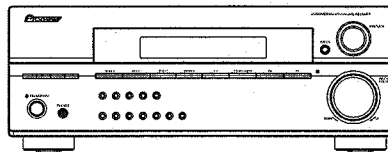


Pioneer *sound.vision.soul*

Service Manual



VSX-415-K

ORDER NO.
RRV3091

AUDIO/VIDEO MULTI-CHANNEL RECEIVER

VSX-415-K VSX-415-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
VSX-415-K	KUCXJ	AC120V	
VSX-415-S	KUCXJ	AC120V	



For details, refer to "Important Check Points for Good Servicing".

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PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
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T-ZZK MAR. 2005

SAFETY INFORMATION



This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

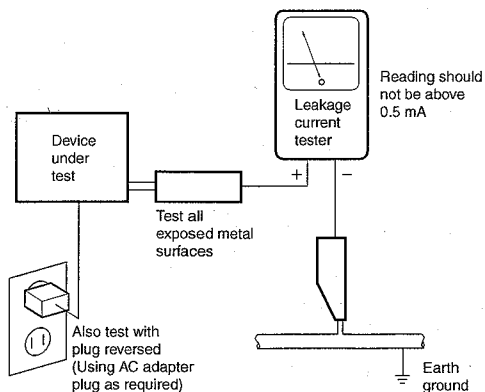
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety



Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

- ① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

- ② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification (addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

- ③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris. Soldering should be finished with the proper quantity. (Refer to the example)

- ④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

- ⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

- ⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs. In addition, be sure that there are no pinched wires, etc.

- ⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

- ⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages. If you find a damaged power cord, please exchange it with a suitable one.

- ⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

- ⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries. Please pay attention to your surroundings and repair safely.

2. Adjustments



To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification. Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts



Use grease and adhesives that are equal to the specified substance. Make sure the proper amount is applied.

4. Cleaning



For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws



To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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1. SPECIFICATIONS

Amplifier section

• Continuous power output (stereo)

Front:
VSX-415..... 120 W (1kHz, THD 0.2%, 8 Ω)¹

• Continuous power output (surround)

VSX-415 model:
Front..... 120 W per channel (1kHz, 10%, 8 Ω)
Center..... 120 W (1kHz, 10%, 8 Ω)
Surround..... 120 W per channel
(1kHz, 10%, 8 Ω)

Audio section

• Input (Sensitivity/Impedance)

CD, DVR/VCR, CD-R/TAPE/MD,
DVD/LD, TV/SAT..... 200 mV/47 k Ω

• Frequency response

CD, DVR/VCR, CD-R/TAPE/MD, DVD/LD,
TV/SAT..... 5 Hz to 100,000 Hz ± 3 dB

• Output (Level/Impedance)

DVR/VCR REC, CD-R/TAPE/
MD REC..... 200 mV/2.2 k Ω

• Tone control

Bass..... ± 6 dB (100 Hz)
Treble..... ± 6 dB (10 kHz)
Loudness..... +10 dB/+5 dB (100 Hz/10 kHz)
(at volume level -50 dB)

• Signal-to-Noise Ratio (IHF, short circuited, A network)

CD, DVR/VCR, CD-R/TAPE/MD,
DVD/LD, TV/SAT..... 96 dB

• Signal-to Noise Ratio [EIA, at 1 W (1 kHz)]

CD, DVR/VCR, CD-R/TAPE/MD,
DVD/LD, TV/SAT..... 79 dB

Video Section

• Input (Sensitivity/Impedance)

DVR/VCR, DVD/LD, TV/SAT..... 1 Vp-p/75 Ω

• Output (Level/Impedance)

DVR/VCR, MONITOR OUT..... 1 Vp-p/75 Ω

• Frequency response

DVR/VCR, DVD/LD,
TV/SAT $\Rightarrow$ MONITOR..... 5 Hz to 7 MHz ± 3 dB
Signal-to-Noise Ratio..... 55 dB
Crosstalk..... 50dB

Note

¹ Continuous average power output of 110 watts* per channel, min., at 8ohms, from 20 Hz to 20,000 Hz with no more than 0.2%** total harmonic distortion (front).

* Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifiers.

** Measured by Audio Spectrum Analyzer.

- **FM Tuner Section**

Frequency Range. 87.5 MHz to 108 MHz

Usable Sensitivity Mono: 13.2 dBf, IHF
(1.3 μ V/ 75 Ω)

50 dB Quieting Sensitivity. Mono: 20.2 dB
Stereo: 38.6 dBf

Signal-to-Noise Ratio. . . Mono: 73 dB (at 85 dBf)
Stereo: 70 dB (at 85 dBf)

Distortion Stereo: 0.5 % (1 kHz)

Alternate Channel Selectivity. 60 dB
(400 kHz)

Stereo Separation 40 dB (1 kHz)

Frequency Response.....30 Hz to 15 kHz
(± 1 dB)

Antenna Input (DIN) 75 Ω unbalanced

AM Tuner Section

Frequency Range. 530 kHz to 1,700 kHz

Sensitivity (IHF, Loop antenna). 350 μ V/m

Signal-to-Noise Ratio.....50 dB

Antenna Loop antenna

Miscellaneous

Power requirements AC 120V / 60Hz

Power consumption:
VSX-415.....260 W / 340 VA

In standby.....0.5 W

Dimensions:

VSX-415...16⁹/₁₆ (W) x 6¹/₄ (H) x 15⁹/₁₆ (D) in.
420 (W) x 158 (H) x 394.5 (D) mm

Weight (without package)

VSX-415. 18.1 lb (8.5 kg)

Furnished Parts

AM loop antenna. 1

FM loop antenna.....	1
FM wire antenna.....	1

Dry cell batteries (AA size IEC R6) 2

Remote control	1
----------------	---

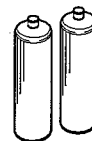
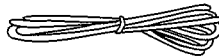
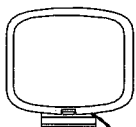
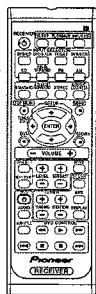
Warranty Card 1

Operating instructions

Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic", "Surround EX", and the double-D symbol are trademarks of Dolby Laboratories.

"DTS", "DTS-ES Extended Surround" and "Neo:6" are trademarks of Digital Theater Systems, Inc.

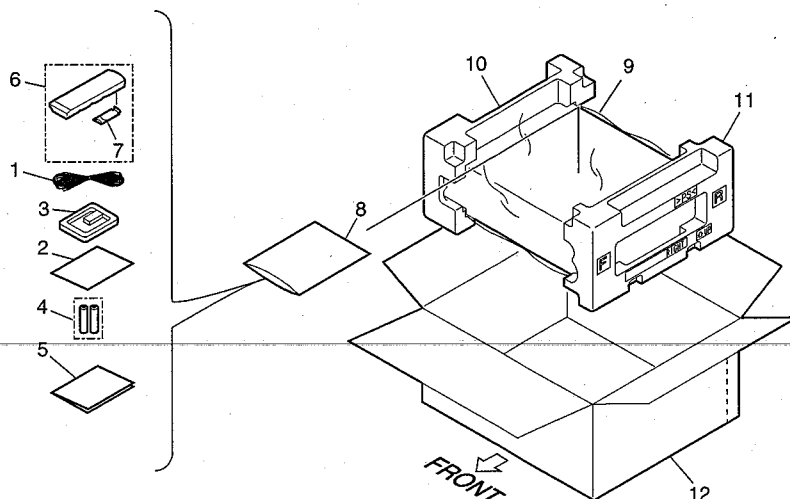
Accessories



2. EXPLODED VIEWS AND PARTS LIST

NOTES: ● Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
 ● The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 ● Screws adjacent to ∇ mark on product are used for disassembly.
 ● For the applying amount of lubricants or glue, follow the instructions in this manual.
 (In the case of no amount instructions, apply as you think it appropriate.)

2.1 PACKING



(1) PACKING SECTION PARTS LIST

Mark No.	Description	Part No.
1	FM wire antenna	ADH7030
NSP 2	Warranty Card	ARY7045
3	AM loop antenna	ATB7013
NSP 4	Dry cell batteries (AA/R6)	VEM1031
5	Operating instructions (English/French)	XRE3090

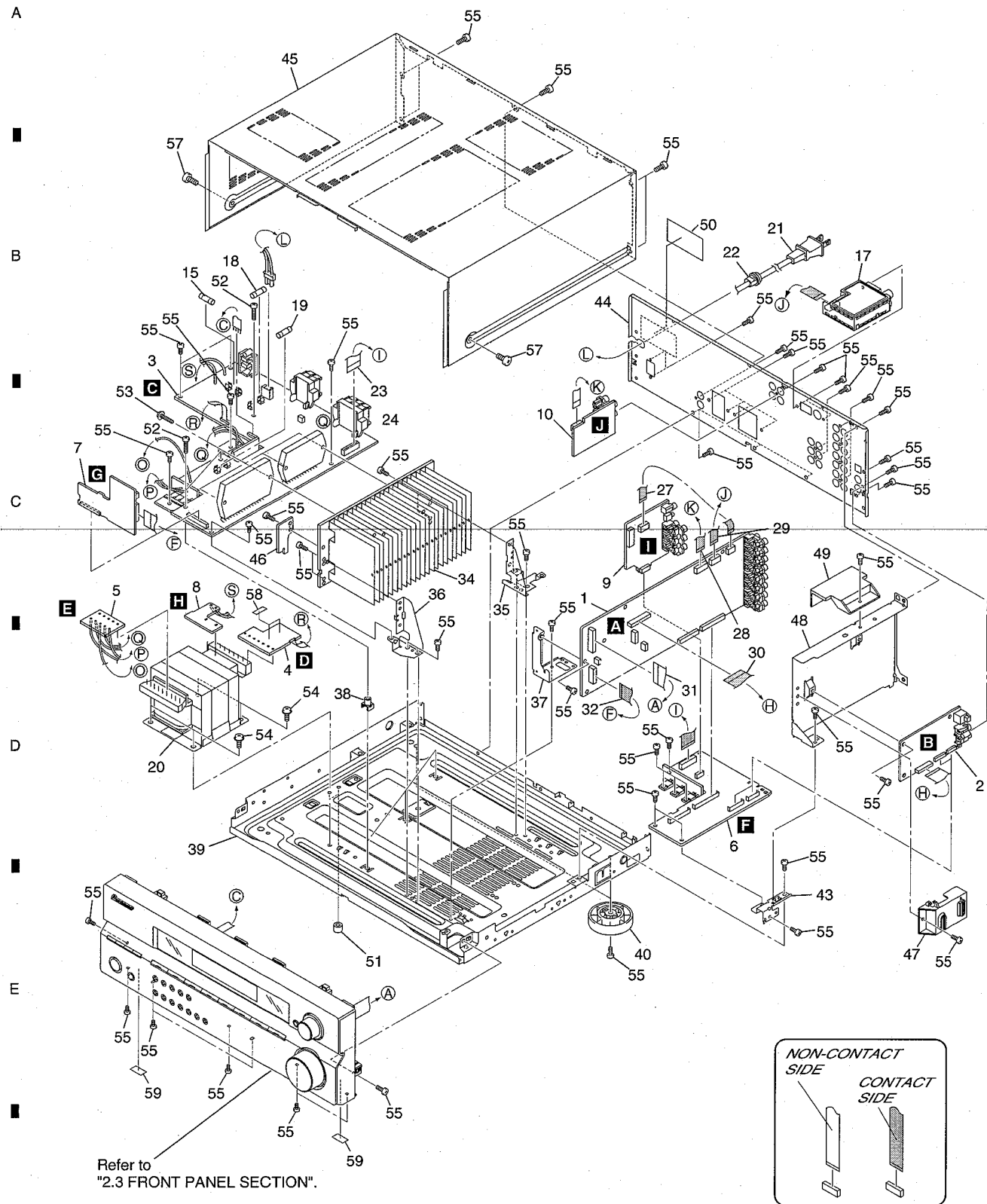
Mark No.	Description	Part No.
6	Remote Control Unit	XXD3067
7	Battery Cover	XZN3139
NSP 8	Literature Bag	AHG1180
9	Packing Sheet	AHG7069
10	Left Pad V2	XHA3149
11	Right Pad V2	XHA3150
12	Packing Case	See Contrast table(2)

(2) CONTRAST TABLE

VSX-415-K/KUCXJ and VSX-415-S/KUCXJ are constructed the same except for the following :

Mark	No.	Description	VSX-415-K/KUCXJ	VSX-415-S/KUCXJ
	12	Packing Case	XHD3476	XHD3477

2.2 EXTERIOR



(1) EXTERIOR SECTION PARTS LIST

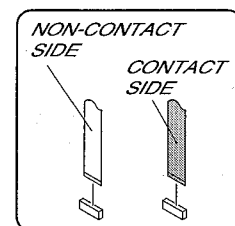
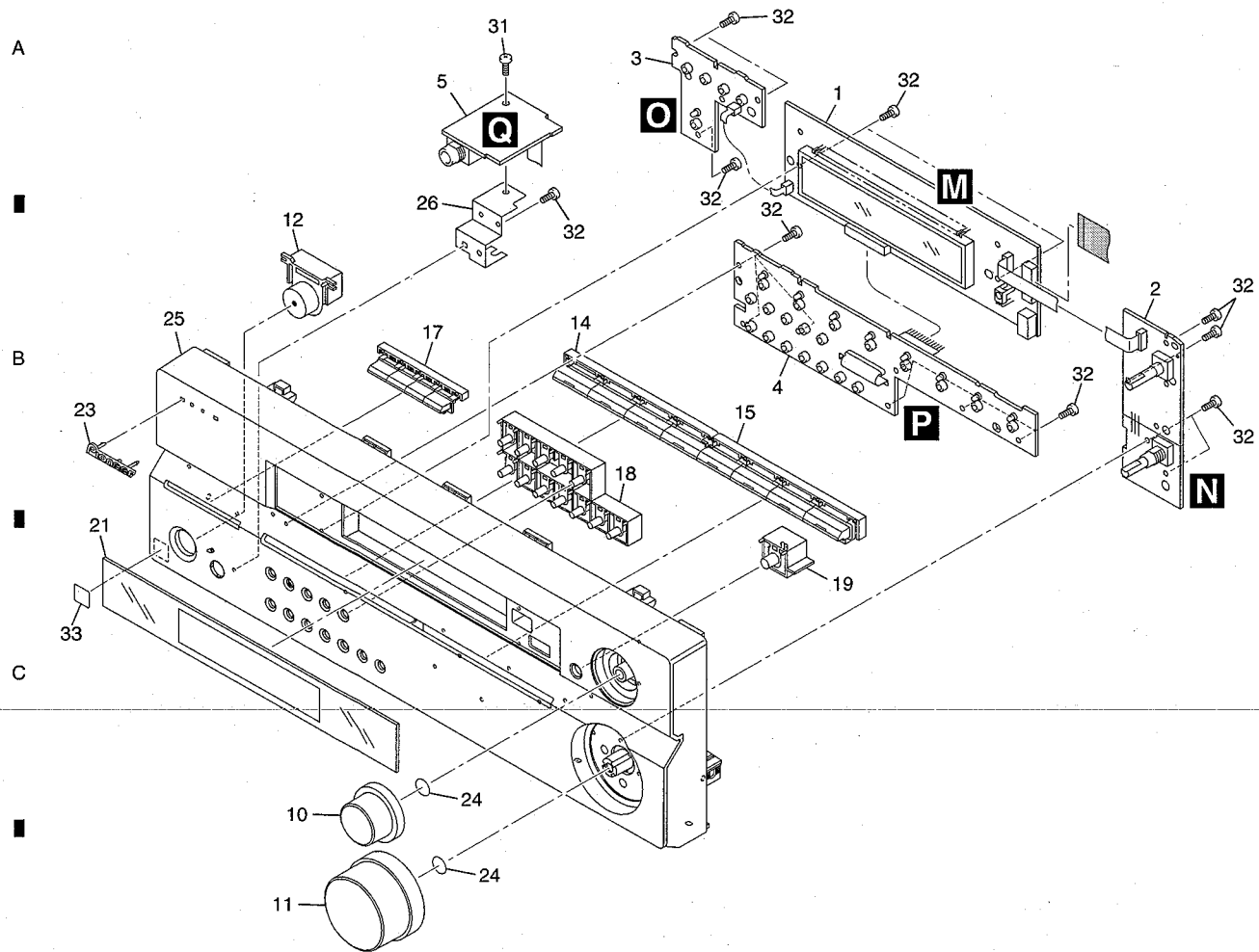
Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1	MAIN Assy	XWK3148	31	J31 17P F.F.C/30V	XDD3118	
2	DSP Assy	AWX8418	32	J35 19P F.F.C/30V	XDD3101	A
3	AMP & PRIMARY Assy	XWZ3894	33	.....		
4	TRANS2 Assy	XWZ3808	NSP 34	Heatsink 0.4	ANH7109	
5	TRANS3 Assy	XWZ3812	35	Heat Sink Angle R	ANG7252	
6	REGULATOR Assy	XWZ3796	36	Heat Sink Angle F	ANG7251	
7	AMP INPUT Assy	XWZ3800	37	PCB Angle R5	XNG3073	
8	TRANS1 Assy	XWZ3805	38	PCB Mold	AMR2533	
9	VIDEO Assy	XWZ3903	NSP 39	Under Base R6	XNA3012	
10	5.1CH Assy	XWZ3914	40	Insulator	AMR7198	
11	.....		41	.....		B
12	.....		42	.....		
13	.....		43	REG Support R6	XNG3093	
14	.....		44	Rear Panel	XNC3332	
⚠ 15	FU2 Fuse (8A)	REK1086	45	Bonnet	See Contrast table(2)	
16	.....		NSP 46	HOLDER Assy	XWZ3819	
17	FM/AM TUNER UNIT	AXX7172	47	FFC Holder R6	XMR3072	
⚠ 18	FU1 Fuse (10A)	REK1087	48	Shield A R6	XNG3068	
⚠ 19	FU701 Fuse (10A)	REK1087	49	FFC Cover R6	XMR3060	
⚠ 20	T1 Power Transformer	XTS3084	NSP 50	N Label	See Contrast table(2)	C
⚠ 21	AC Power Cord	ADG7024	NSP 51	Spacer	AEB7092	
22	Cord Stopper	CM-22C	52	Screw	BBZ30P200FTC	
23	J36 23P F.F.C/30V	XDD3102	53	Screw 3x23	XBA3012	
24	.....		54	Screw	FBT40P080FNI	
25	.....		55	Screw	BBZ30P080FTC	
26	.....		56	.....		
27	J33 13P F.F.C/30V	XDD3150	57	Screw	See Contrast table(2)	
28	J48 8P F.F.C/30V	XDD3151	NSP 58	ICP Label	XAX3319	
29	J34 11P F.F.C/30V	XDD3149	59	Rubber Sheet	AEB1111	D
30	J43 19P F.F.C/30V	XDD3126				

(2) CONTRAST TABLE

VSX-415-K/KUCXJ and VSX-415-S/KUCXJ are constructed the same except for the following :

Mark	No.	Description	VSX-415-K/KUCXJ	VSX-415-S/KUCXJ
	45	Bonnet KV1	XZN3148	Not used
	45	Bonnet SV1	Not used	XZN3149
NSP	50	N Label 415K/KU	XAL3215	Not used
	57	Screw	FBT40P080FTB	FBT40P080FNI

2.3 FRONT PANEL



VSX-415-K

(1) FRONT PANEL SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	FRONT DISPLAY ASSY	XWZ3908	21	D Panel 415 B	XAK3480
2	R. ENCODER Assy	XWZ3920	22	.....	
3	P. SW & FUNC. KEY Assy	XWZ3917	23	Pioneer Badge B	See Contrast table(2)
4	FRONT KEY Assy	XWZ3912	NSP 24	C Ring DIM 8.1	XBH3016
5	H.P. Assy	XWZ3923	25	FRT Panel	See Contrast table(2)
6	.....		26	Earth Plate HP V2	XNG3131
7	.....		27	.....	
8	.....		28	.....	
9	.....		29	.....	
10	JOG Knob	See Contrast table(2)	30	.....	
11	VOL Knob	See Contrast table(2)	31	Screw	BBZ30P080FTC
12	Standby BTN	See Contrast table(2)	32	Screw	BPZ30P100FTC
13	.....		NSP 33	Energy Star Label	AAX8022
14	FUNC BTN L	See Contrast table(2)			
15	FUNC BTN R	See Contrast table(2)			
16	.....				
17	TUNER BTN	See Contrast table(2)			
18	Sub BTN	See Contrast table(2)			
19	JOG BUTTON	See Contrast table(2)			
20	.....				

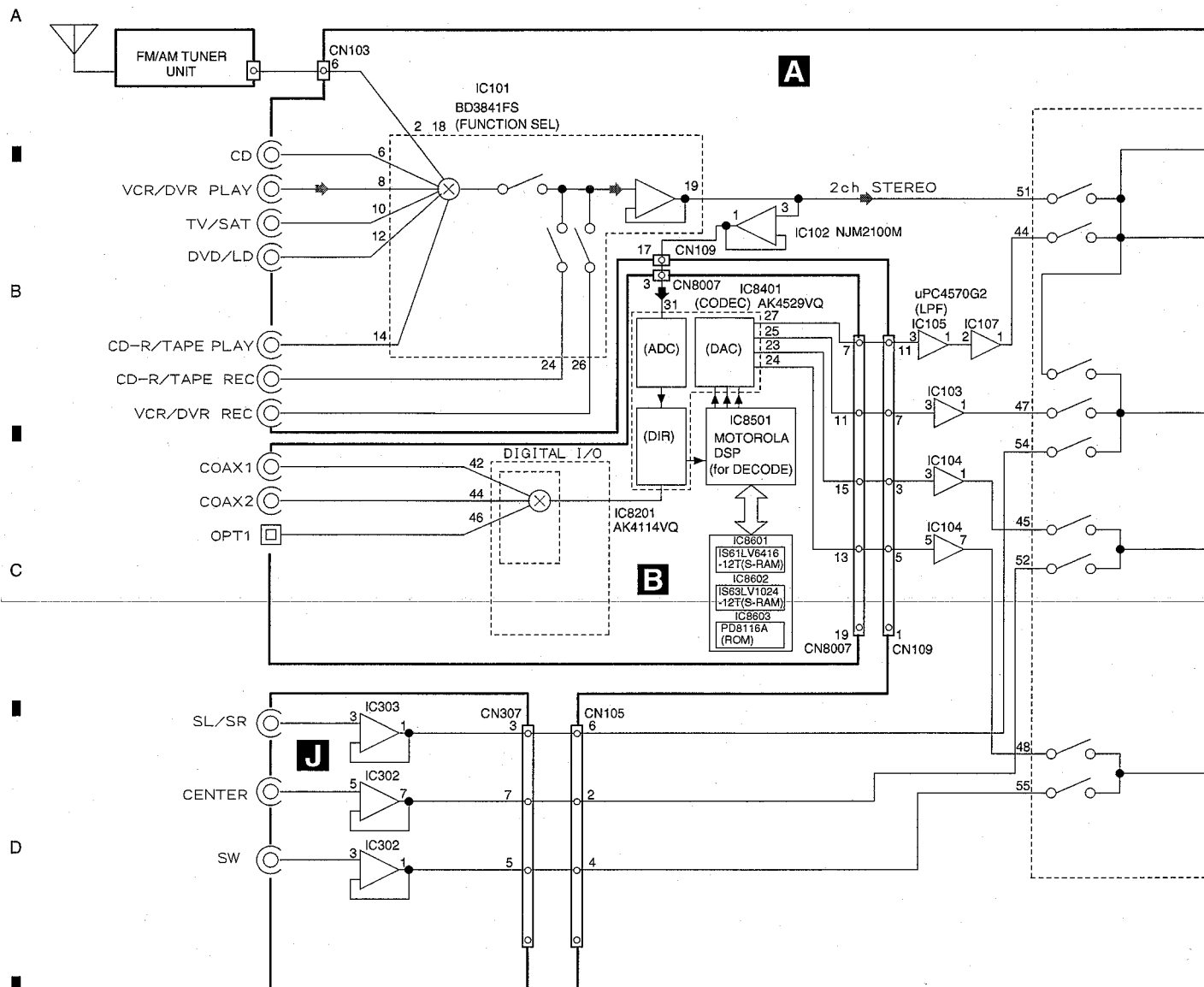
(2) CONTRAST TABLE

VSX-415-K/KUCXJ and VSX-415-S/KUCXJ are constructed the same except for the following :

Mark	No.	Description	VSX-415-K/KUCXJ	VSX-415-S/KUCXJ
	10	JOG Knob V1K	XAB3038	Not used
	10	JOG Knob V1S	Not used	XAB3042
	11	VOL Knob V1K	XAB3039	Not used
	11	VOL Knob V1S	Not used	XAB3043
	12	Standby BTN 515K	XAD3202	Not used
	12	Standby BTN 515S	Not used	XAD3203
	14	FUNC BTN 515K L	XAD3206	Not used
	14	FUNC BTN 515S L	Not used	XAD3210
	15	FUNC BTN 515K R	XAD3207	Not used
	15	FUNC BTN 515S R	Not used	XAD3211
	17	Tuner BTN V2K	XAD3192	Not used
	17	Tuner BTN V2S	Not used	XAD3193
	18	Sub BTN V2K	XAD3198	Not used
	18	Sub BTN V2S	Not used	XAD3199
	19	Jog Button V2K	XAD3204	Not used
	19	Jog Button V2S	Not used	XAD3205
	23	Pioneer Badge	XAM3006	VAM1129
	25	FRT Panel 415K	XMB3179	Not used
	25	FRT Panel 415S	Not used	XMB3180

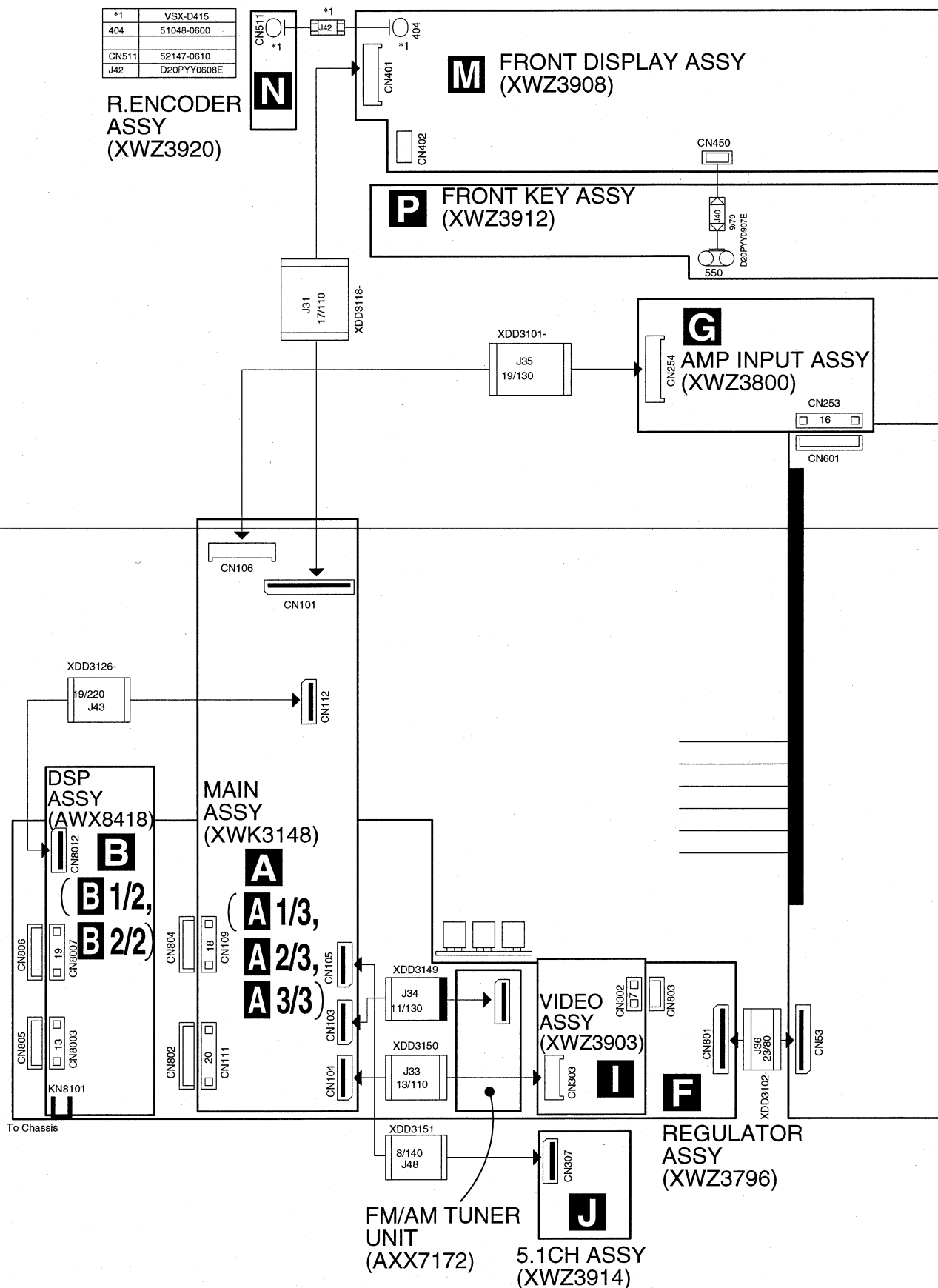
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

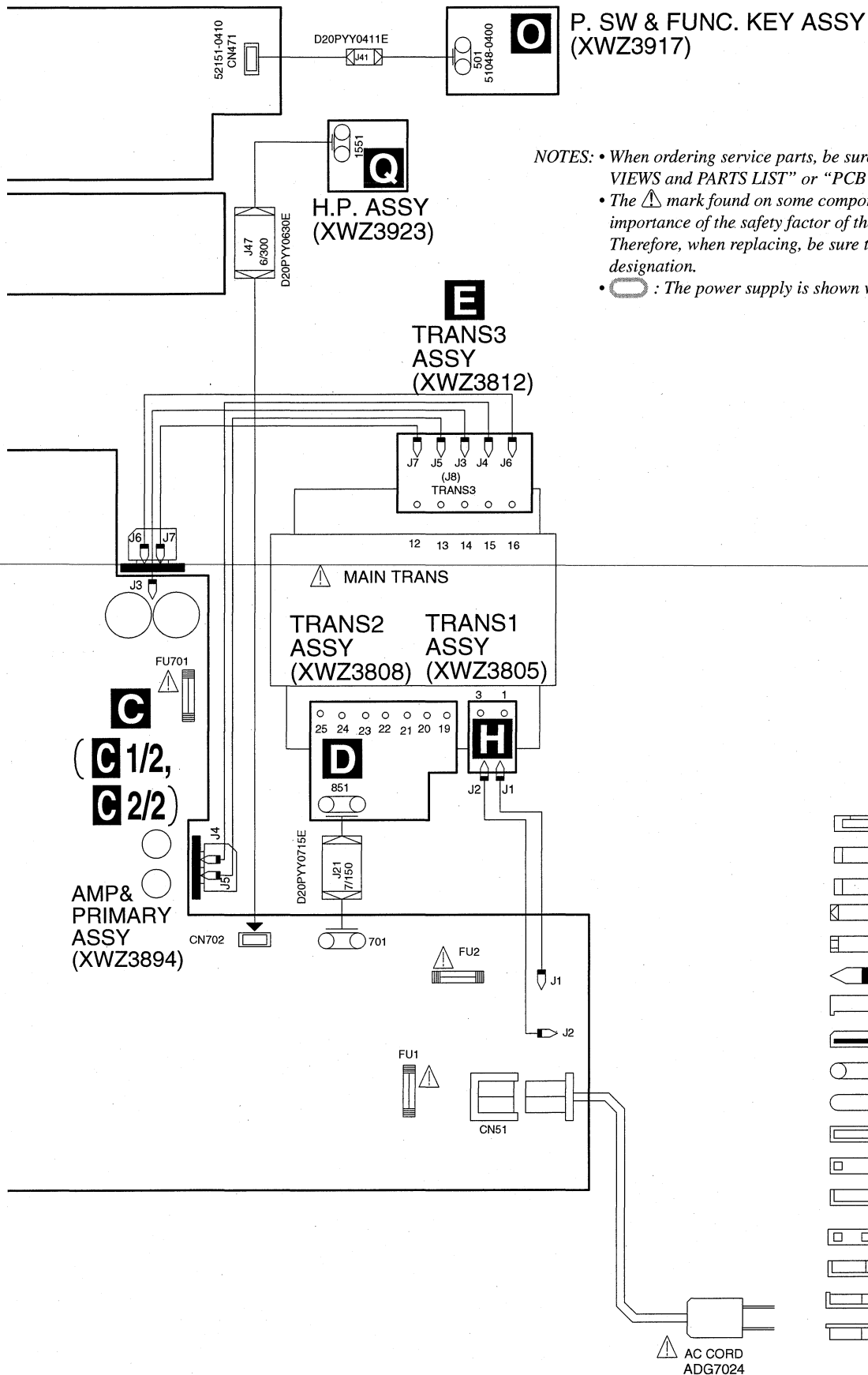
3.1 BLOCK DIAGRAM





3.2 OVERALL WIRING CONNECTION DIAGRAM





NOTES: • When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".

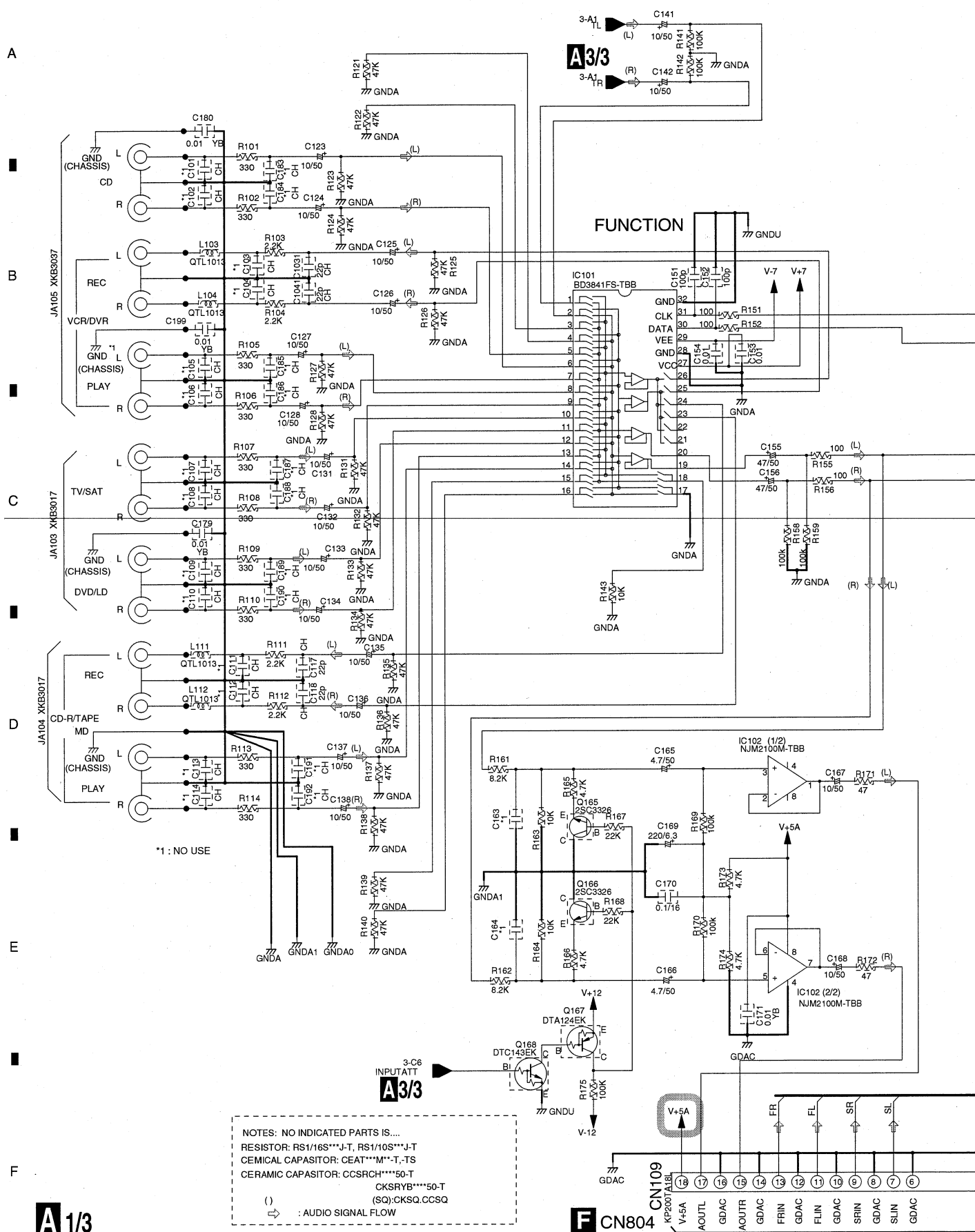
• The Δ mark found on some component parts indicates the importance of the safety factor of the part.

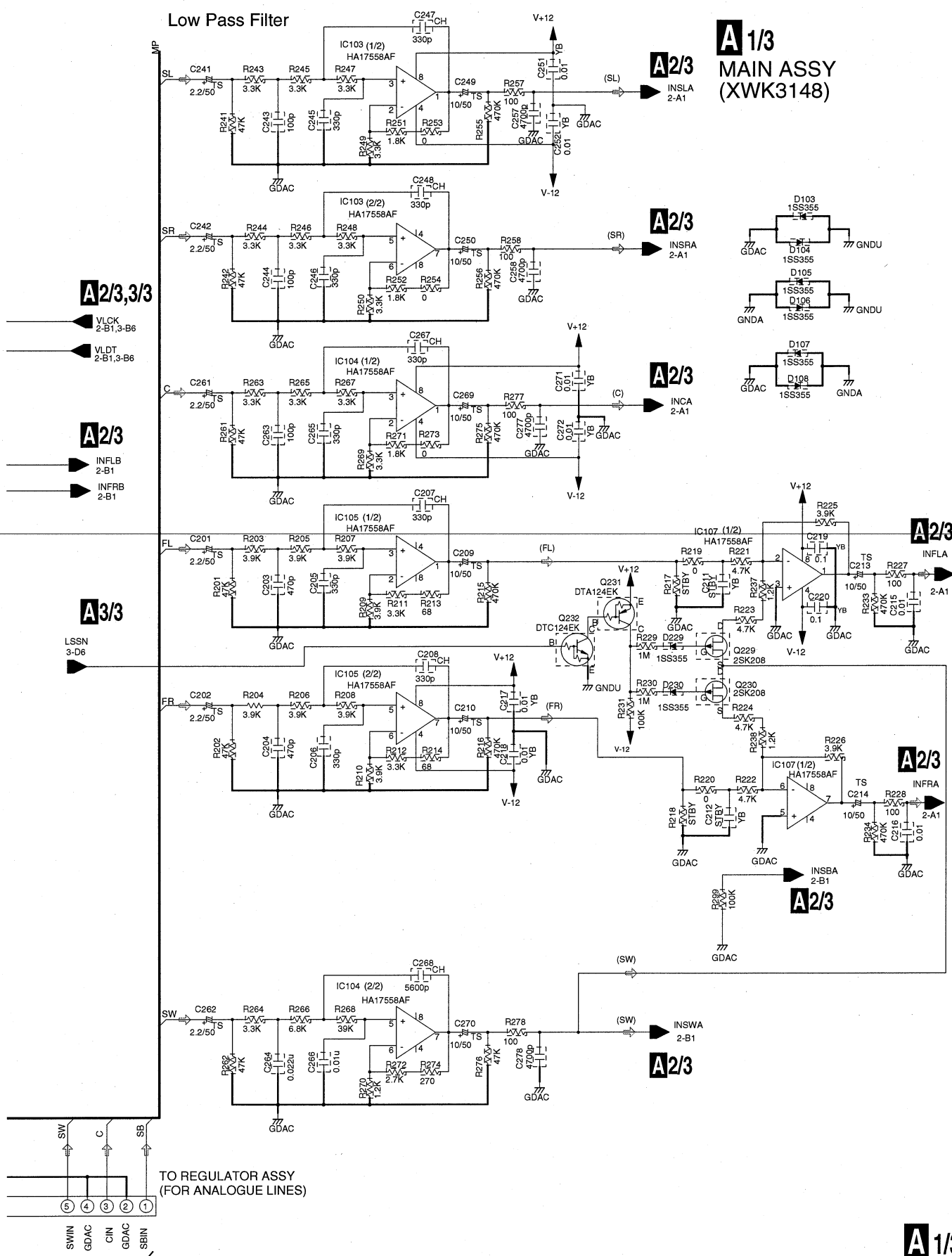
Therefore, when replacing, be sure to use parts of identical designation.

• $\square$: The power supply is shown with the marked box.

- B*B-PH-K-S PH CONNECTOR
- 1.25mm FFC
- 1.25mm REVERSE FFC
- 2.0mm FLAT CABLE
- 1.5mm FLAT CABLE
- BOARD IN
- 1.25mm FFC CONNECTOR(L)
- 1.25mm FFC CONNECTOR
- 2.0mm CABLE HOLDER
- 1.5mm CABLE HOLDER
- 2.0mm WIRE TRAP
- KP200TA**L 2.0mm BOARD to BOARD
- KM200TA** 2.0mm BOARD to BOARD
- AKP7070, AKP7073 1.25mm BOARD to BOARD
- AKP7059, AKP7062 1.25mm BOARD to BOARD
- AC CODE SOCKET
- AC CODE CONNECTOR

3.3 MAIN ASSY (1/3)





A 1/3
MAIN ASSY
(XWK3148)

A 2/3

A 2/3

A 2/3

A2/3,3/3

A2/3

A3/3

A 2/3

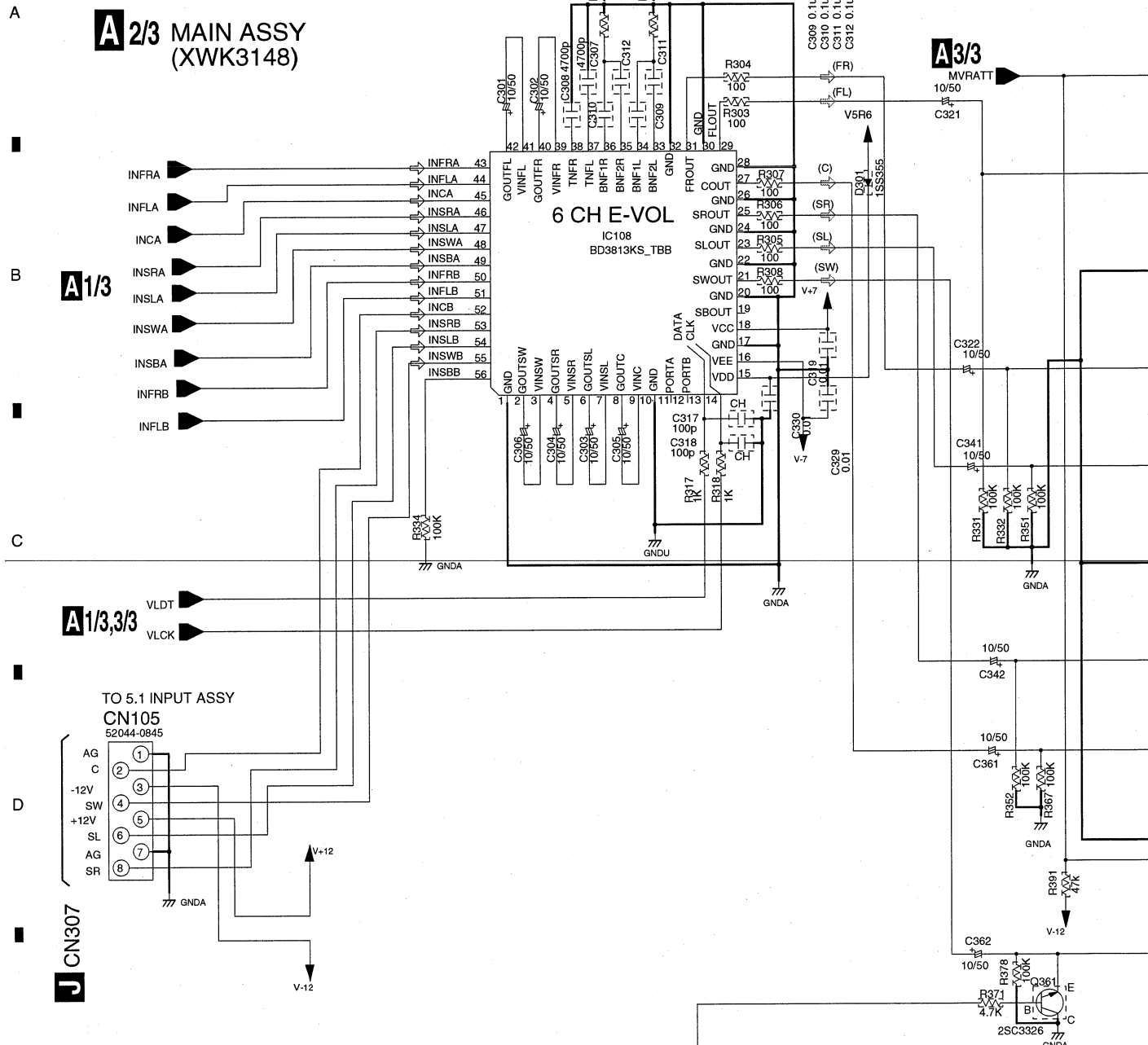
A 2/3

A2/3

A2/3

A $\frac{1}{3}$

1 ■ 2 ■ 3 ■ 4 ■



A 2/3



E

C

□

E

F

3.5 MAIN ASSY (3/3)

A

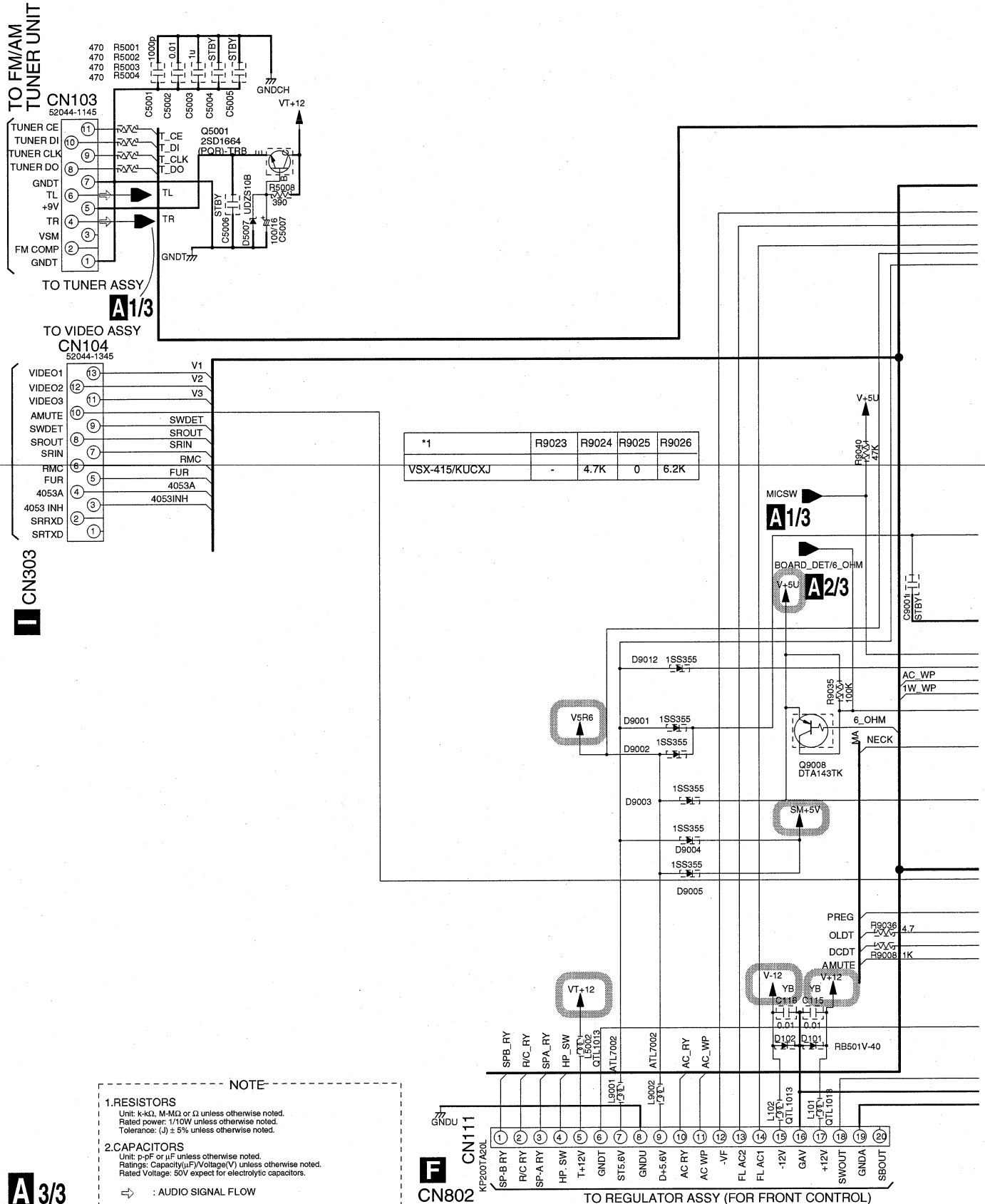
B

C

D

E

F



A 3/3



TO FRONT DISPLAY ASSY

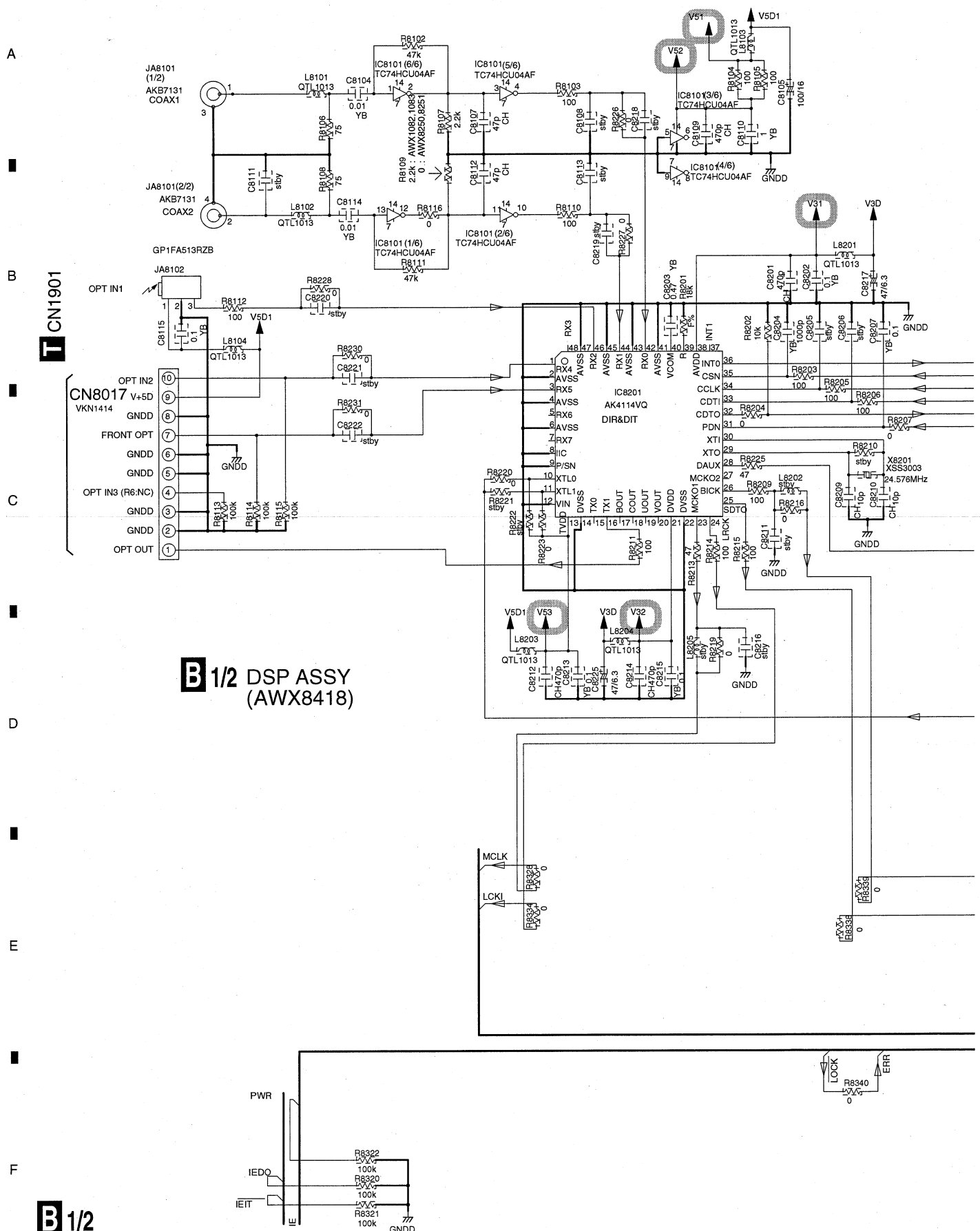
MAIN μ -COM
PD5963A

TO CORE ASSY
(TO DSP CORE)

B2/2 CN8012

A 3/3

3.6 DSP ASSY (1/2)



B 1/2 DSP ASSY (AWX8418)

VSX-415-K



B

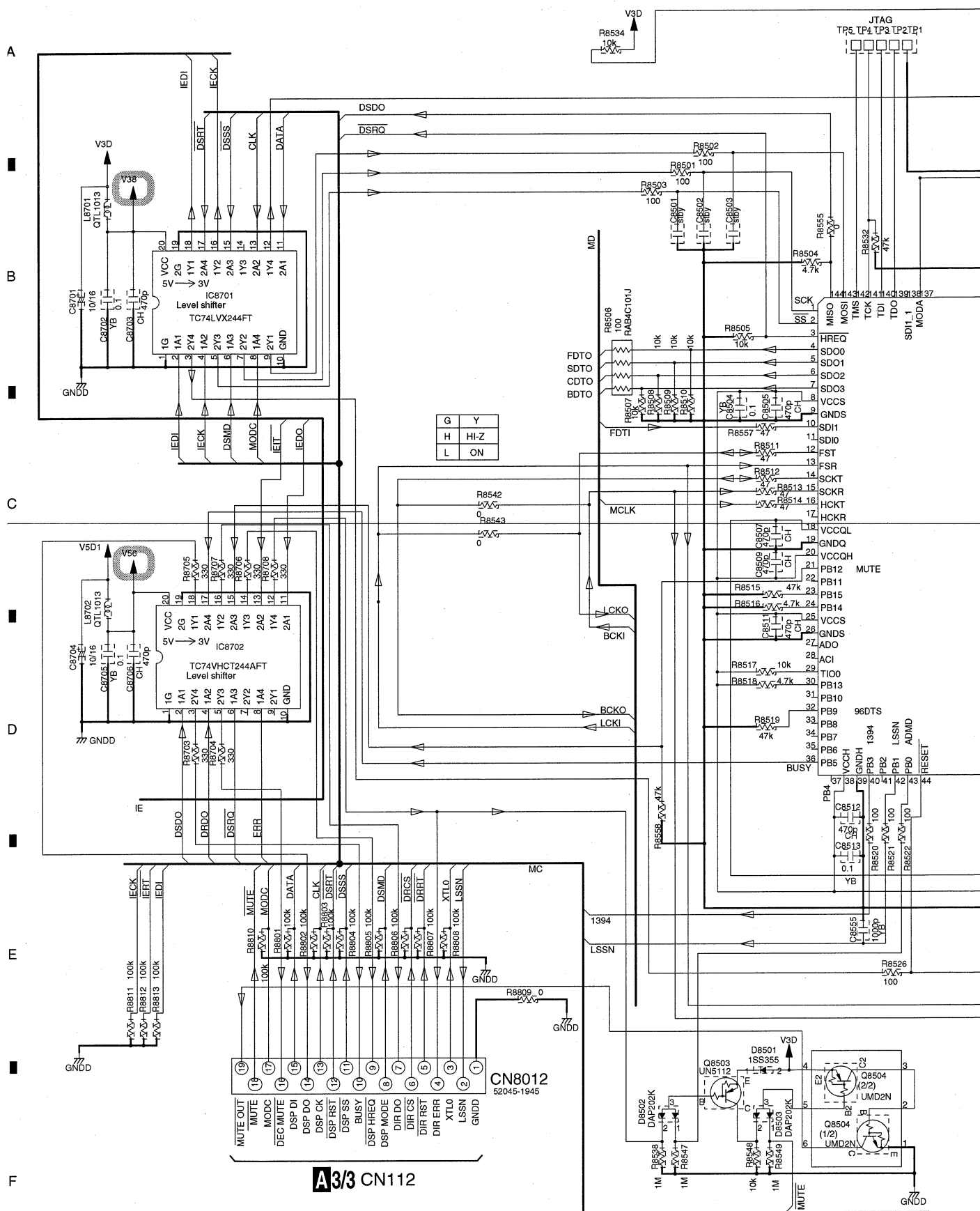
c

D

E

F

3.7 DSP ASSY (2/2)



A3/3 CN112

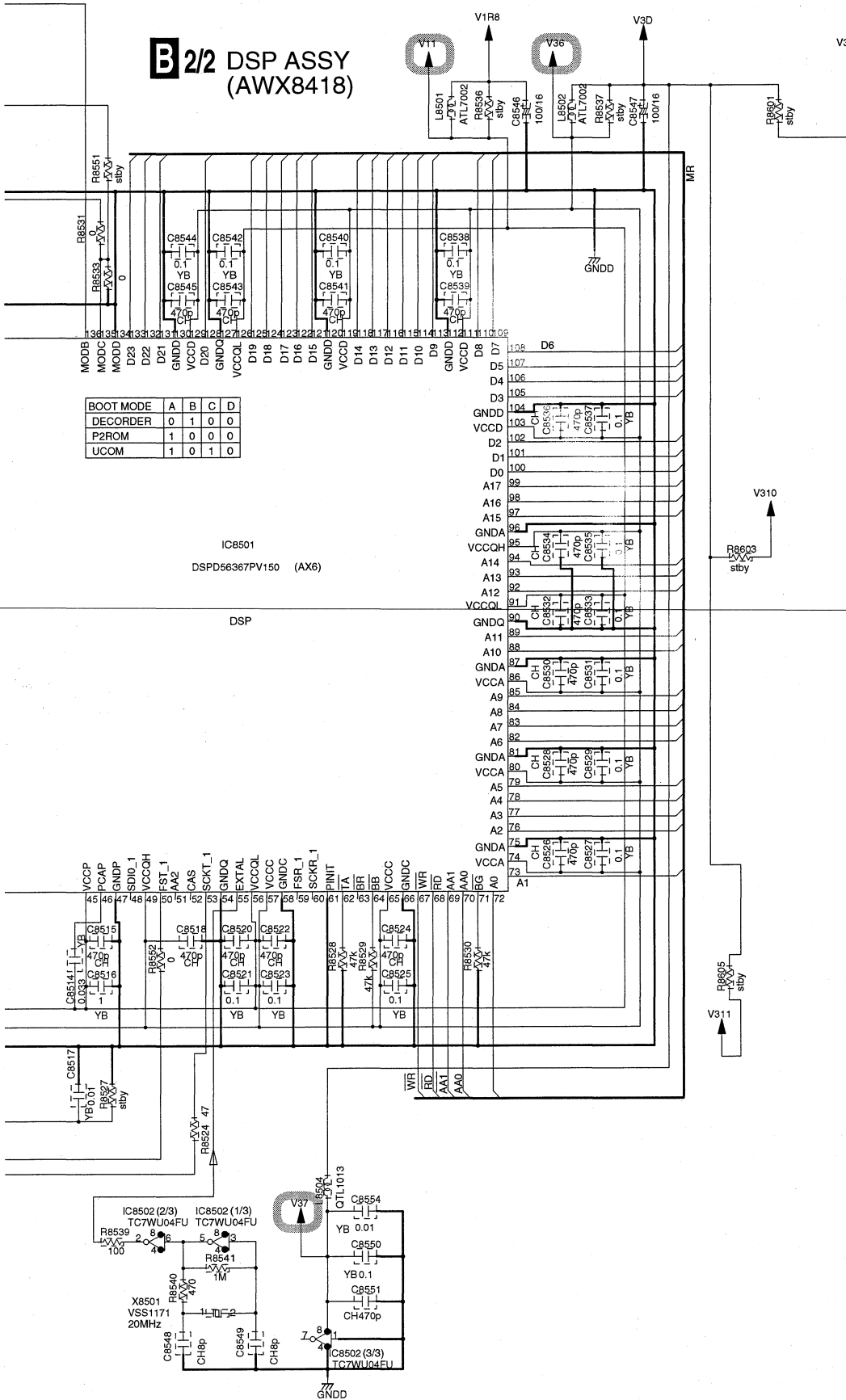
B 2/2

B 2/2 DSP ASSY (AWX8418)

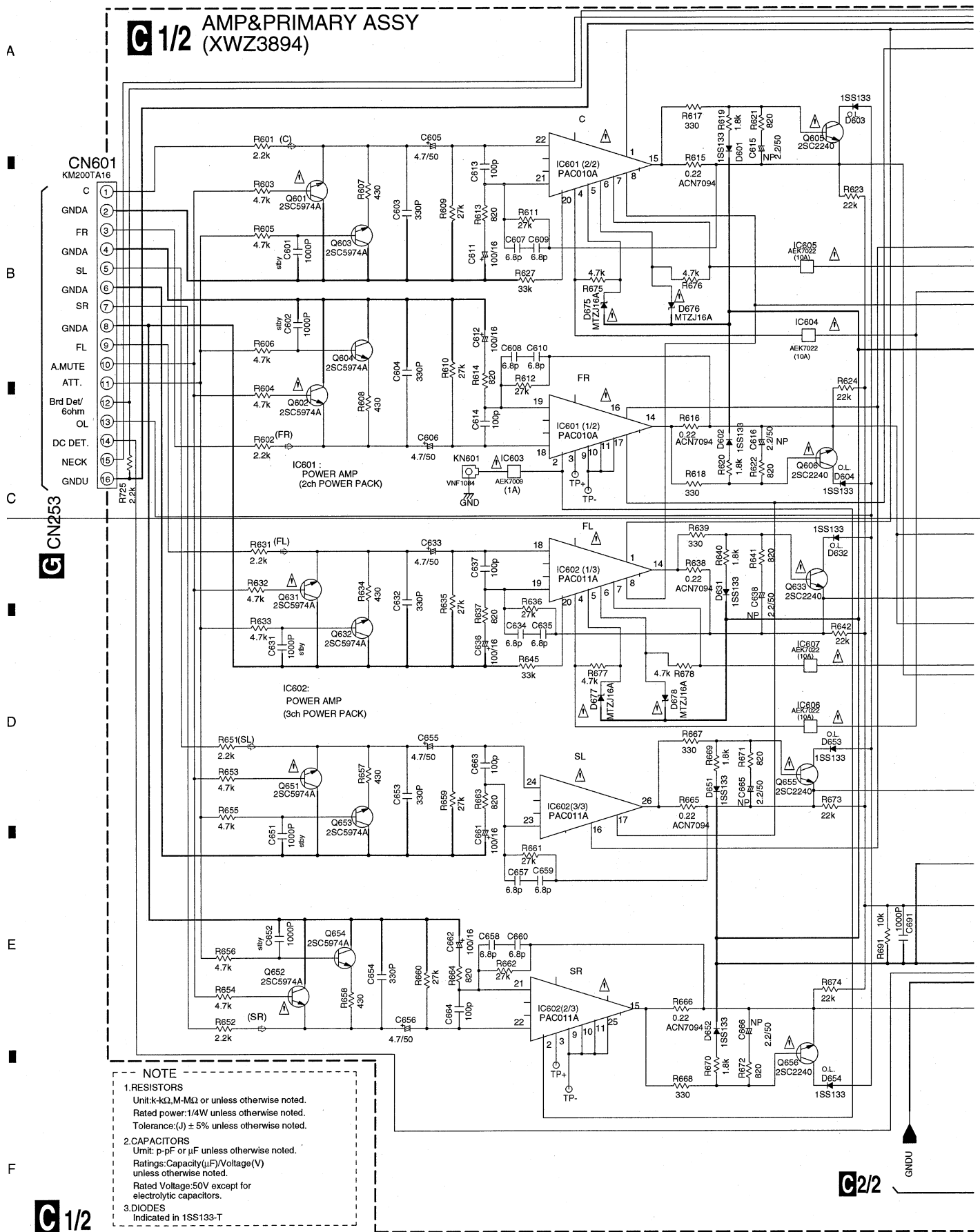
BOOT MODE	A	B	C	D
DECORDER	0	1	0	0
P2ROM	1	0	0	0
UCOM	1	0	1	0

IC8501
DSPD56367PV150 (AX6)

DSP

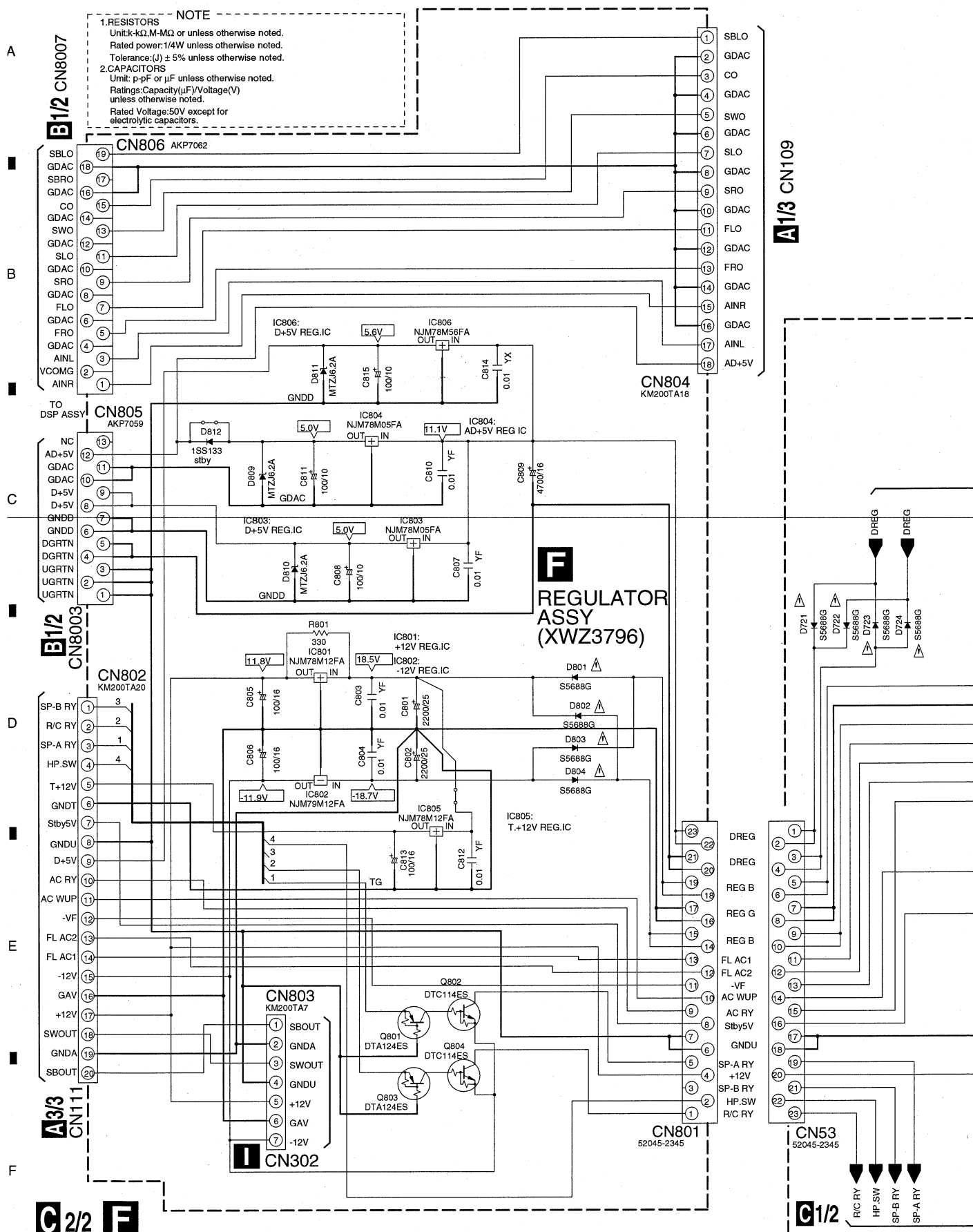


3.8 AMP & PRIMARY (1/2),TRANS2 and TRANS3 ASSYS



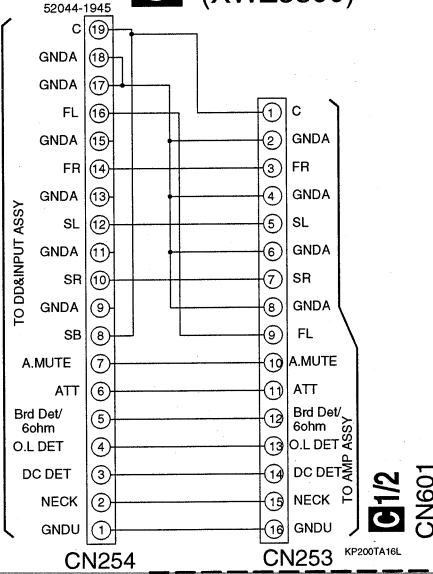


3.9 AMP & PRIMARY (2/2), REGULATOR, AMP INPUT and TRANS1 ASSYS





AMP INPUT ASSY (XWZ3800)



A2/3 CN106

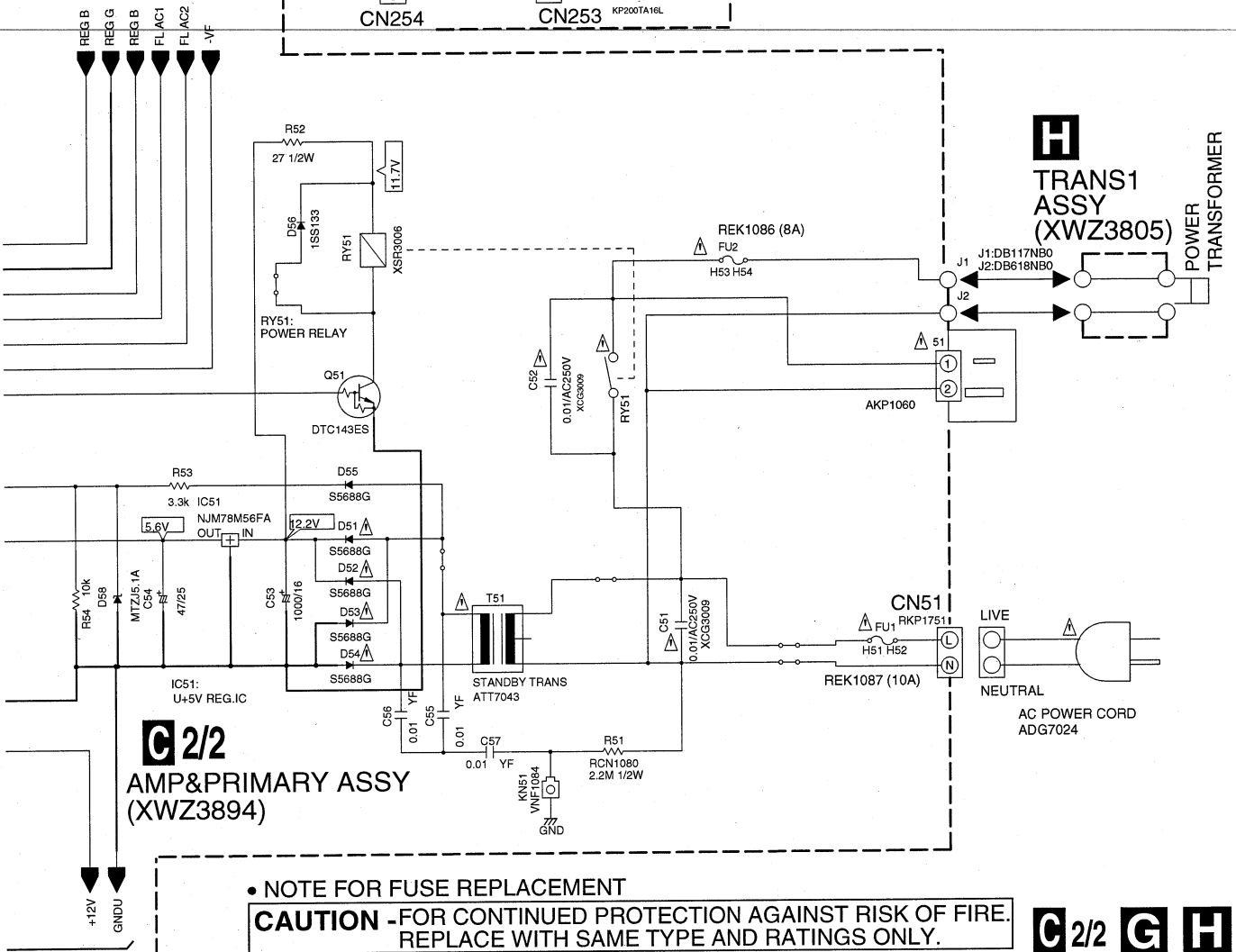
C1/2

C1/2
CN601



TRANS1 ASSY (XWZ3805)

POWER
TRANSFORMER

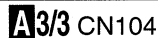


• NOTE FOR FUSE REPLACEMENT

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE WITH SAME TYPE AND RATINGS ONLY.

C2/2 G H

I J



➡ VIDEO SIGNAL FLOW
➡ AUDIO SIGNAL FLOW

■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

■

7

■

8

■

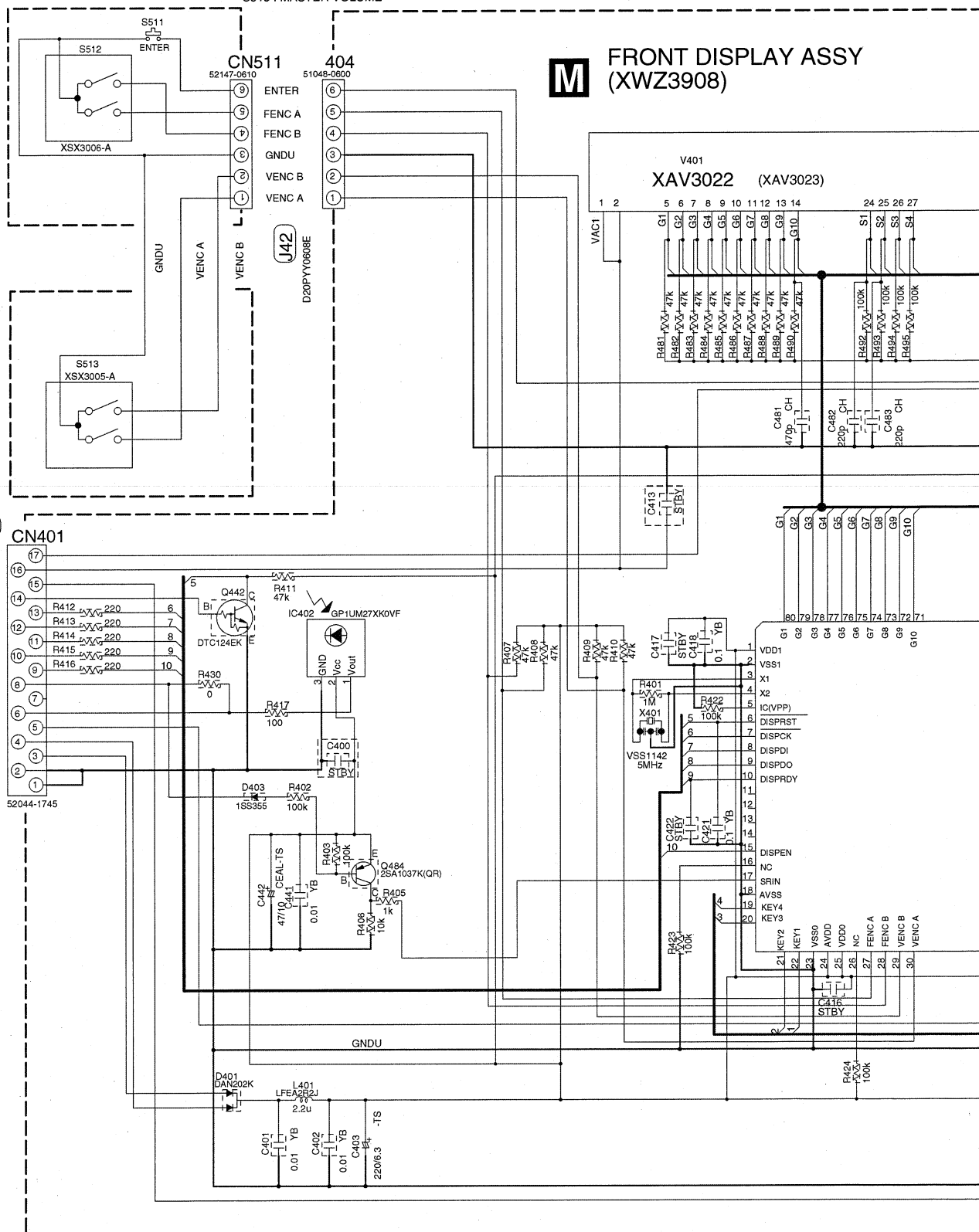
VSX-415-K

31

3.11 FRONT DISPLAY, R. ENCODER, P. SW&FUNC KEY and F. KEY ASSYS

N R.ENCODER ASSY
(XWZ3920)

R.ENCODER ASSY
S511 : ENTER
S512 : MULTI JOG DIAL
S513 : MASTER VOLUME



M FRONT DISPLAY ASSY
(XWZ3908)

A3/3
CN101

J31 CN401

TO MAIN ASSY

M N

- NOTE

1.RESISTORS

Unit: k- Ω , M-M Ω or Ω unless otherwise noted.
 Rated power: 1/16W unless otherwise noted.
 Tolerance: (J) $\pm 5\%$ unless otherwise noted.

2.CAPACITORS

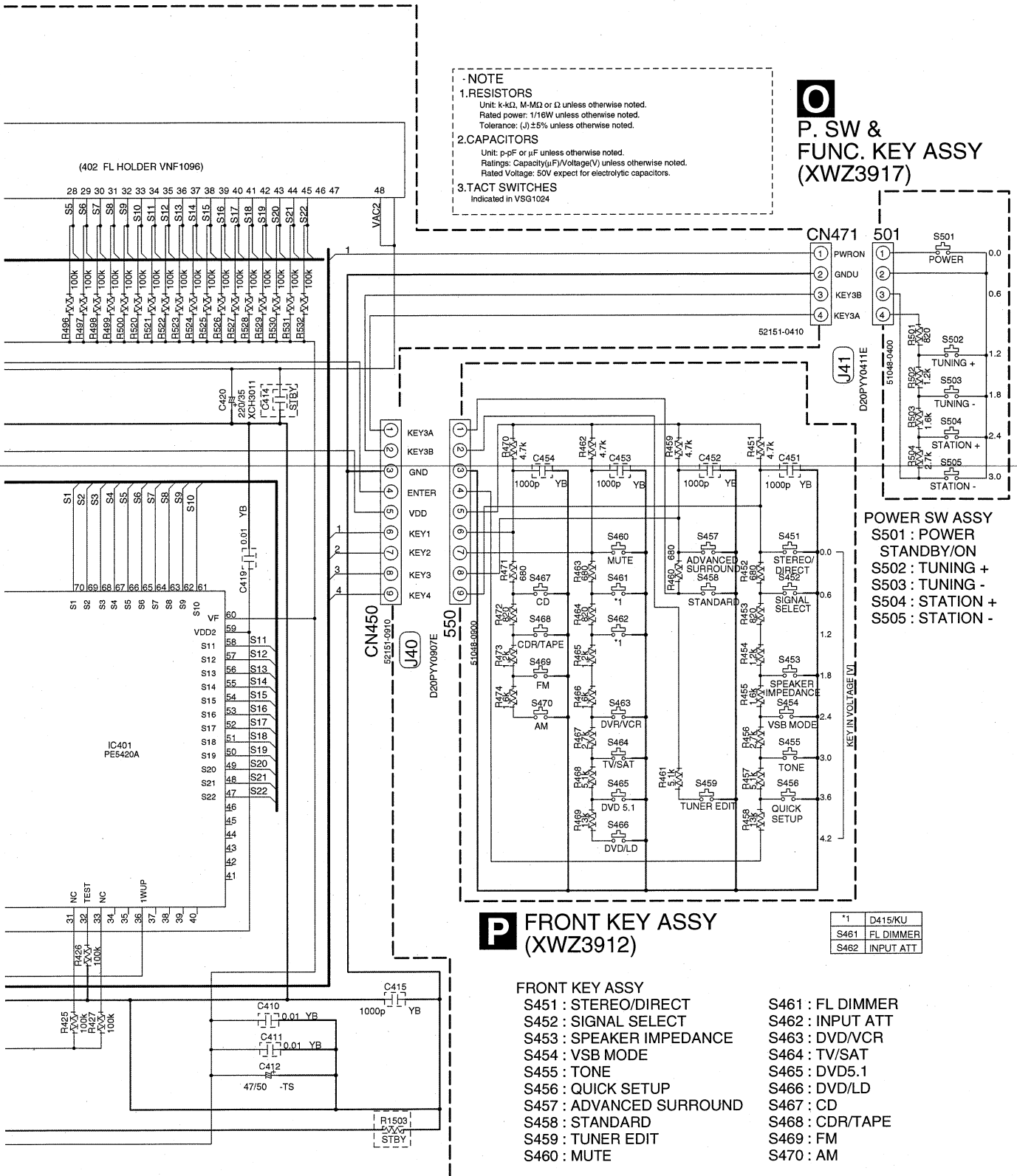
Unit: p-pF or μ F unless otherwise noted.
 Ratings: Capacity(μ F)/Voltage(V) unless otherwise noted.
 Rated Voltage: 50V except for electrolytic capacitors.

3.TACT SWITCHES

Indicated in VSG1024



P. SW & FUNC. KEY ASSY (XWZ3917)



P FRONT KEY ASSY (XWZ3912)

*1	D415/KU
S461	FL DIMMER
S462	INPUT ATT

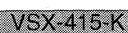
FRONT KEY ASSY

S451 : STEREO/DIRECT
 S452 : SIGNAL SELECT
 S453 : SPEAKER IMPEDANCE
 S454 : VSB MODE
 S455 : TONE
 S456 : QUICK SETUP
 S457 : ADVANCED SURROUND
 S458 : STANDARD
 S459 : TUNER EDIT
 S460 : MUTE

S461 : FL DIMMER
 S462 : INPUT ATT
 S463 : DVD/VCR
 S464 : TV/SAT
 S465 : DVD5.1
 S466 : DVD/LD
 S467 : CD
 S468 : CDR/TAPE
 S469 : FM
 S470 : AM



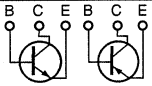
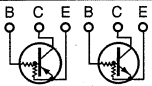
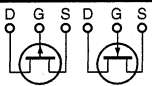
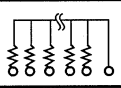
34



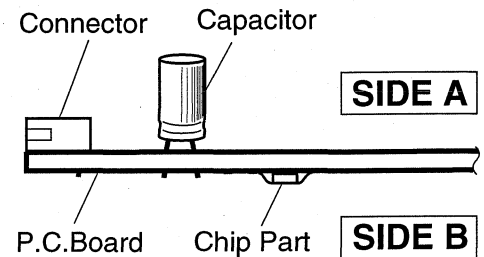
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

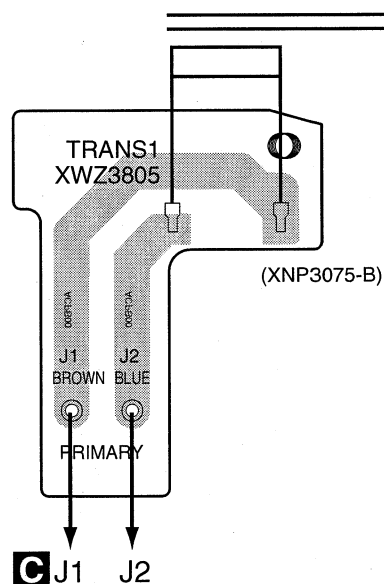
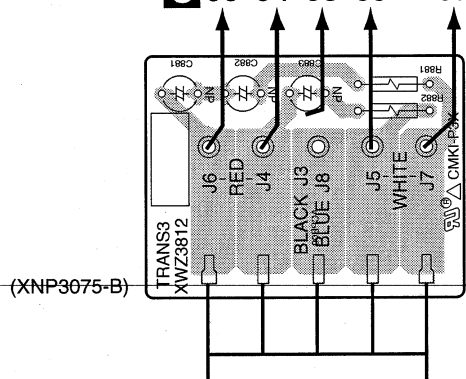
3. The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



SIDE A

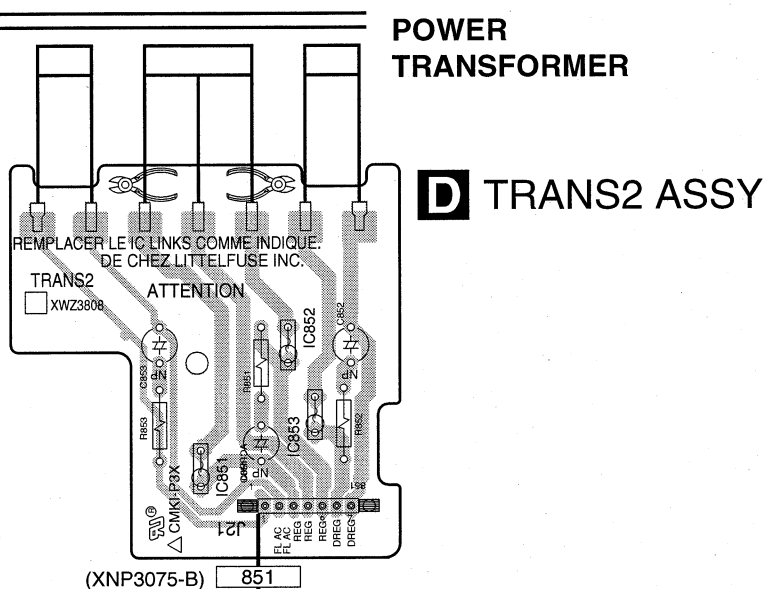
SIDE A

C J6 J4 J3 J5 J7



C J1 J2

H TRANS1 ASSY



D TRANS2 ASSY

REEMPLACER LE IC LINKS COMME INDIQUE.
DE CHEZ LITTELFUSE INC.

(XNP3075-B) 851

C 701

DEH

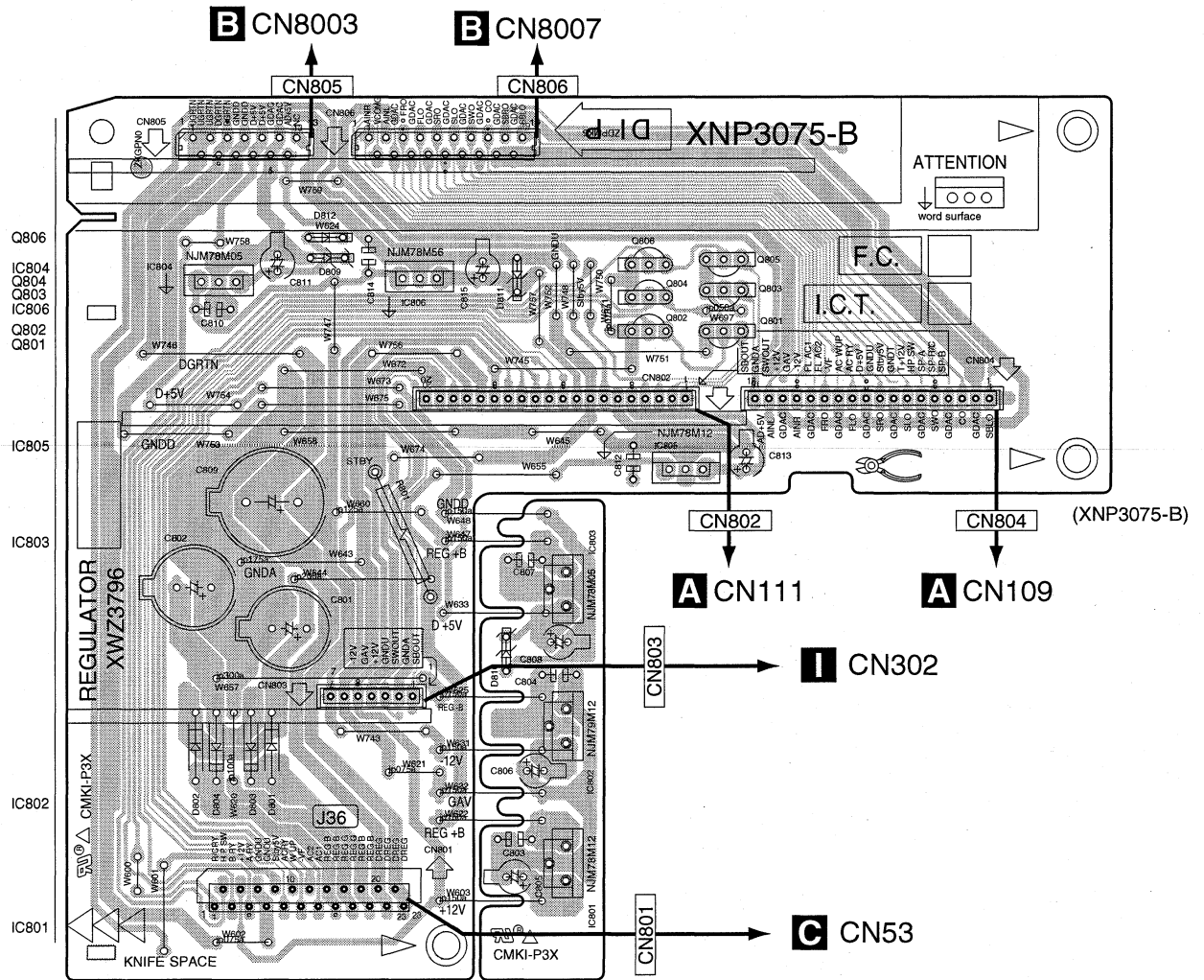
DEH

4.2 REGULATOR ASSY

SIDE A

SIDE A

F REGULATOR ASSY



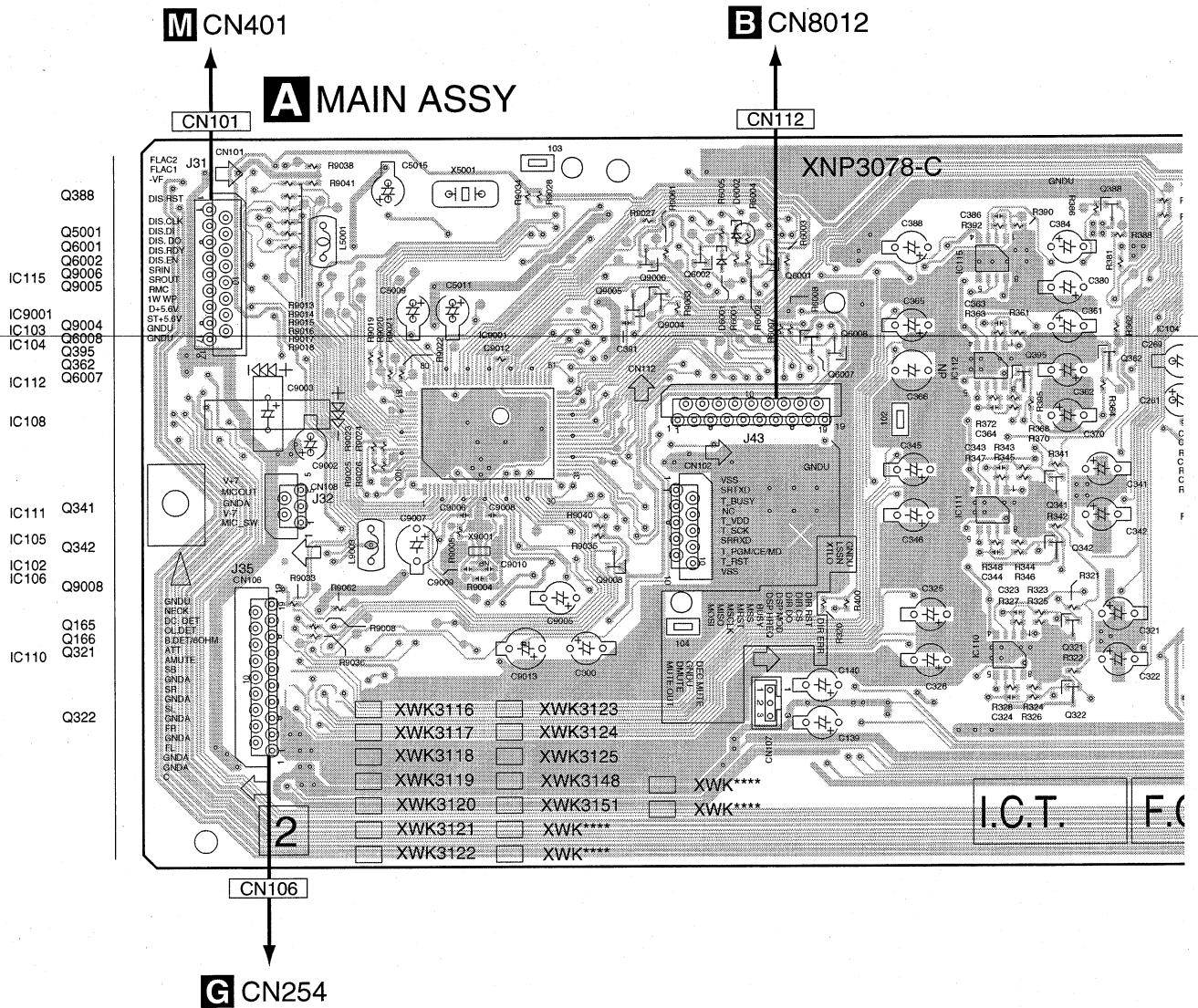
F

F

VSX-415-K

4.3 MAIN ASSY

SIDE A



SIDE A

A

B

C

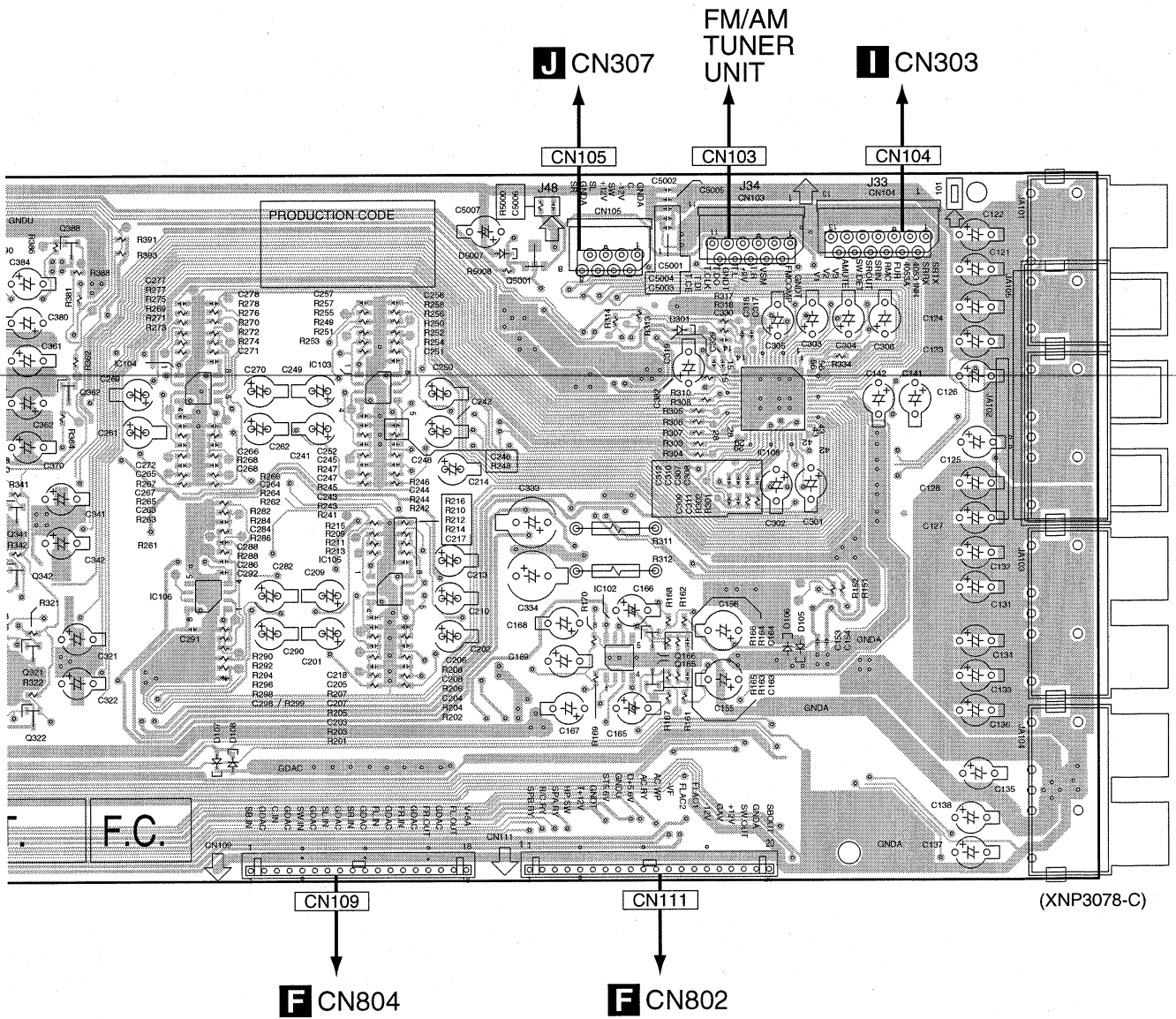
D

E

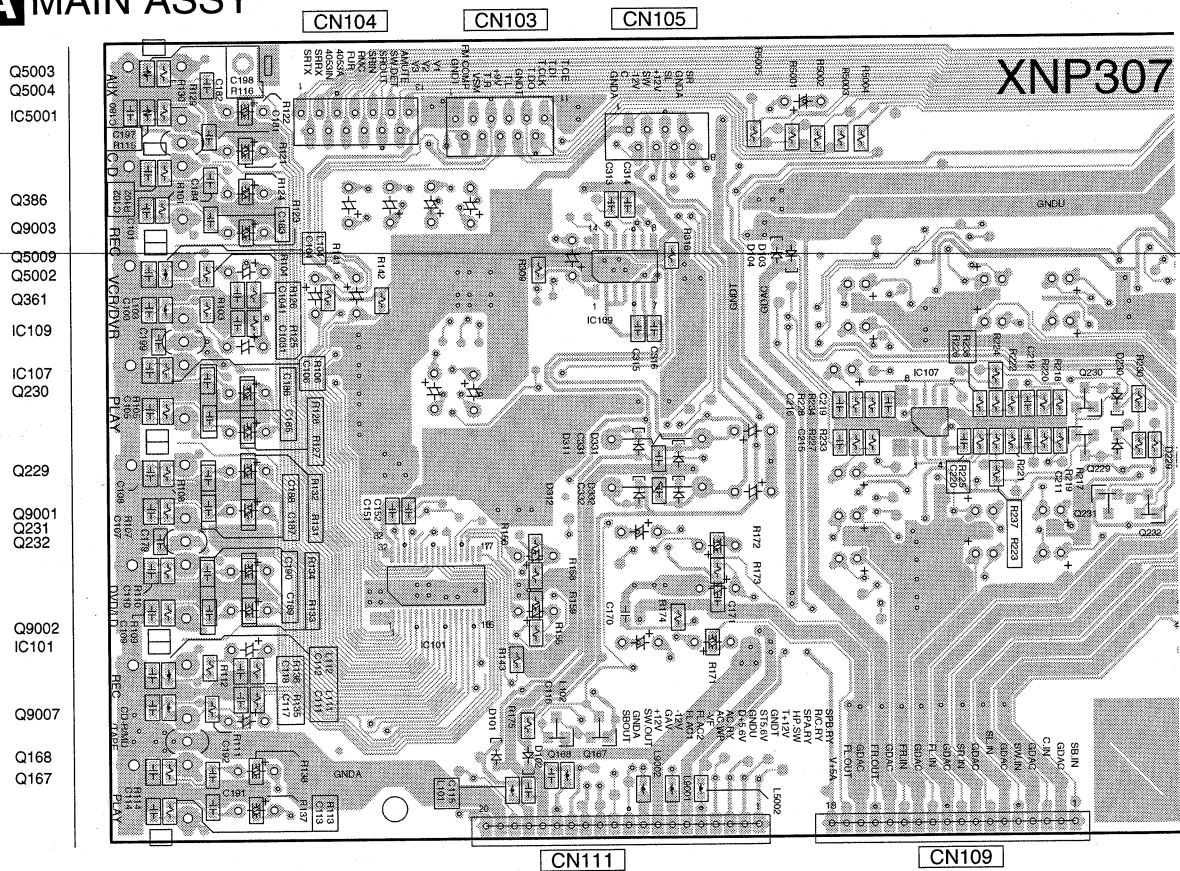
F

A

39



SIDE B

A MAIN ASSY**A**

SIDE B

A

F

C

D

E

F

A

41

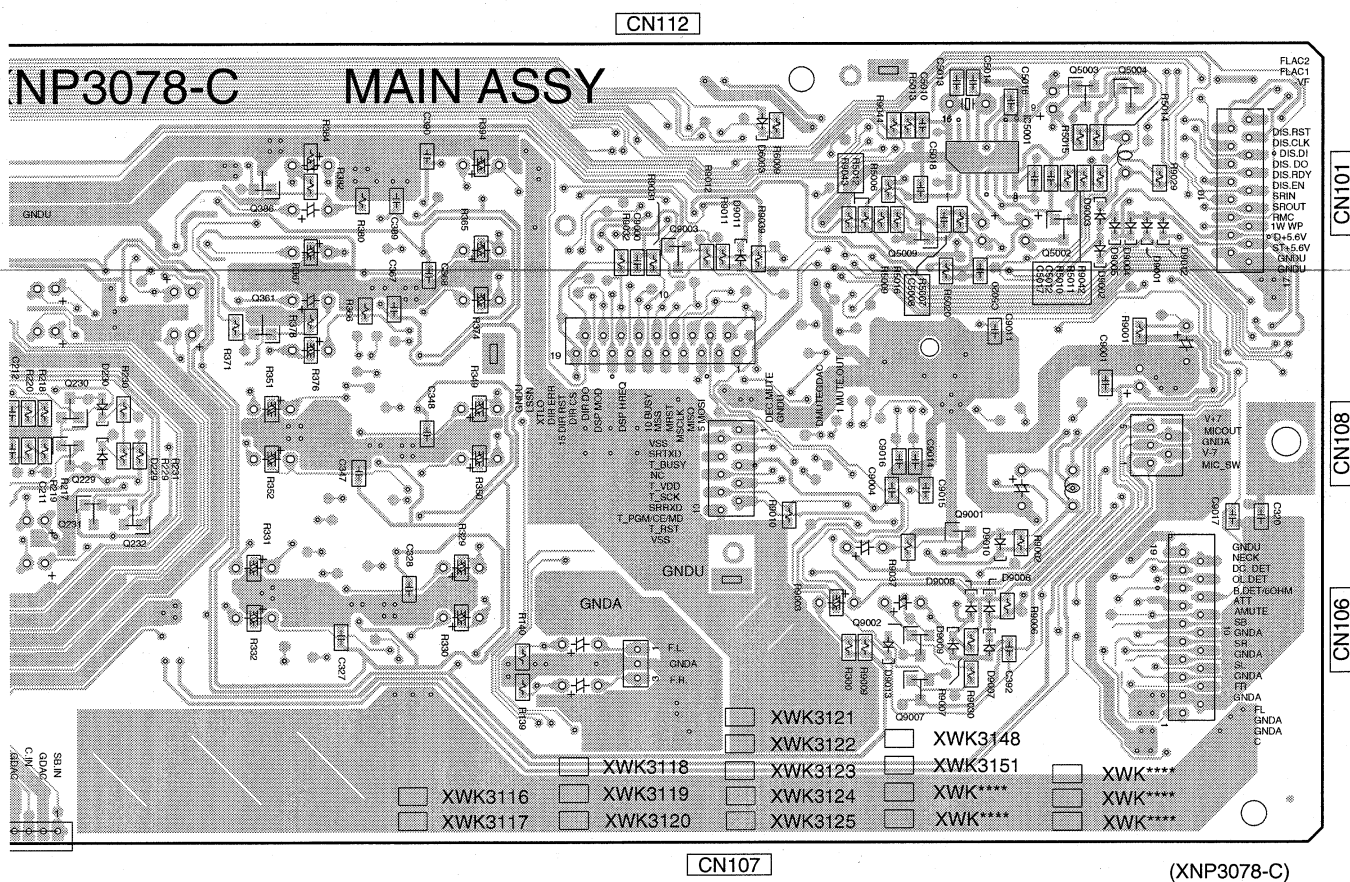
5

6

7

8

VSX-415-K

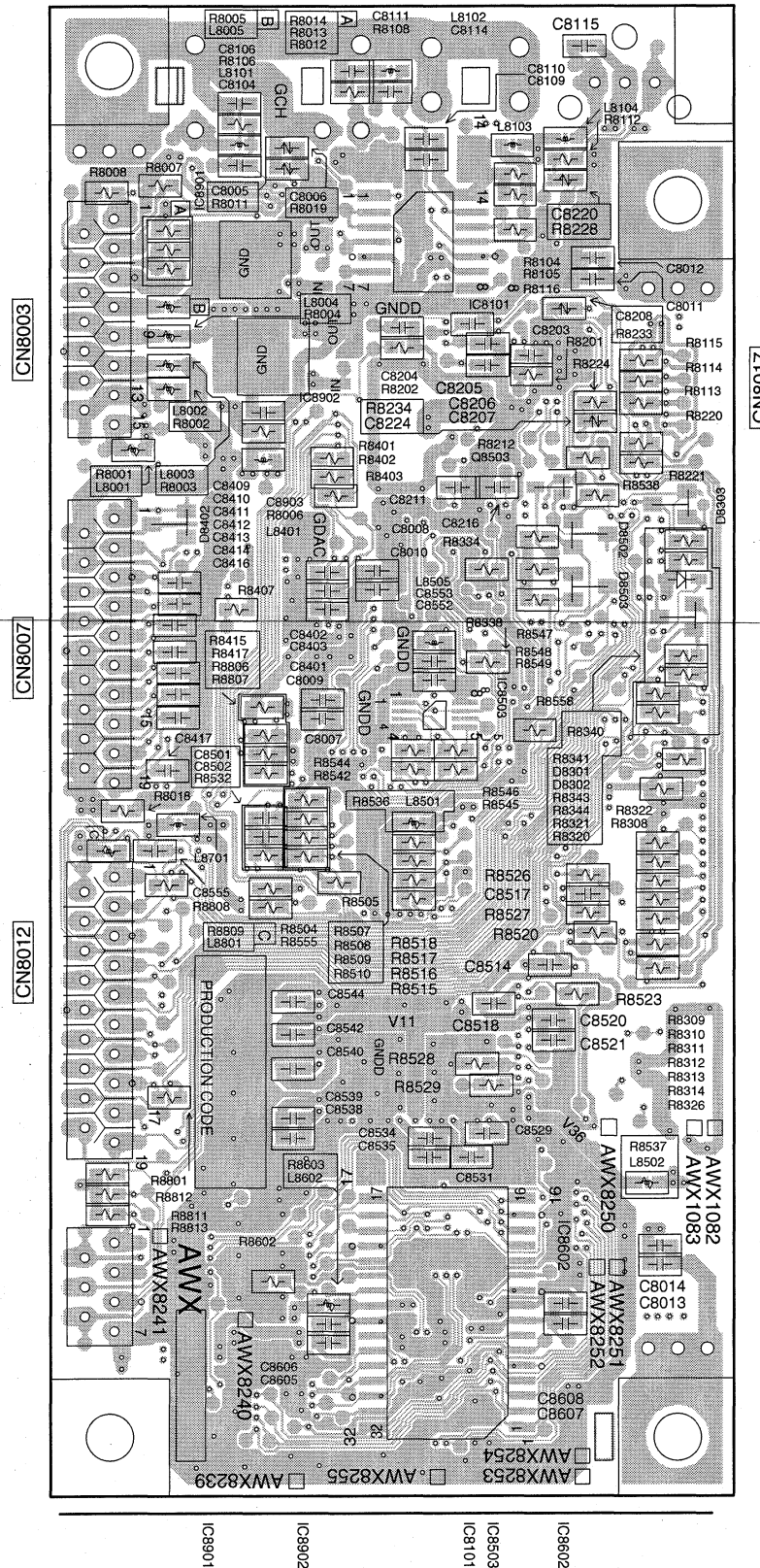


B

SIDE B

B DSP ASSY

SIDE B

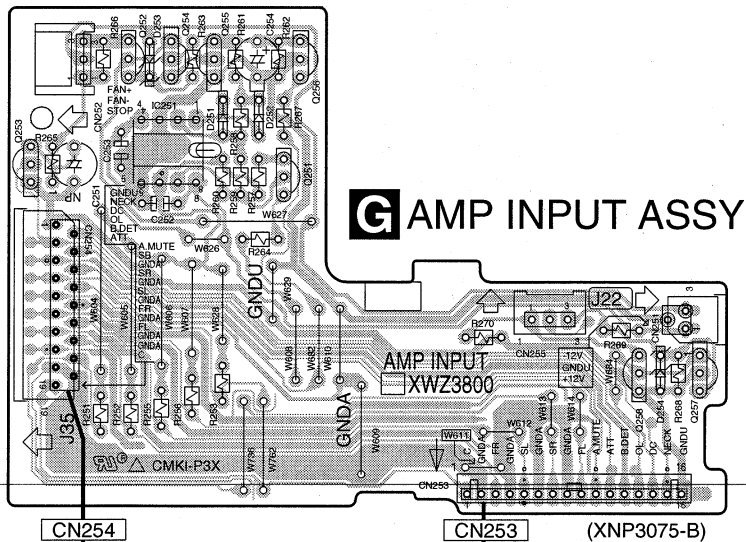


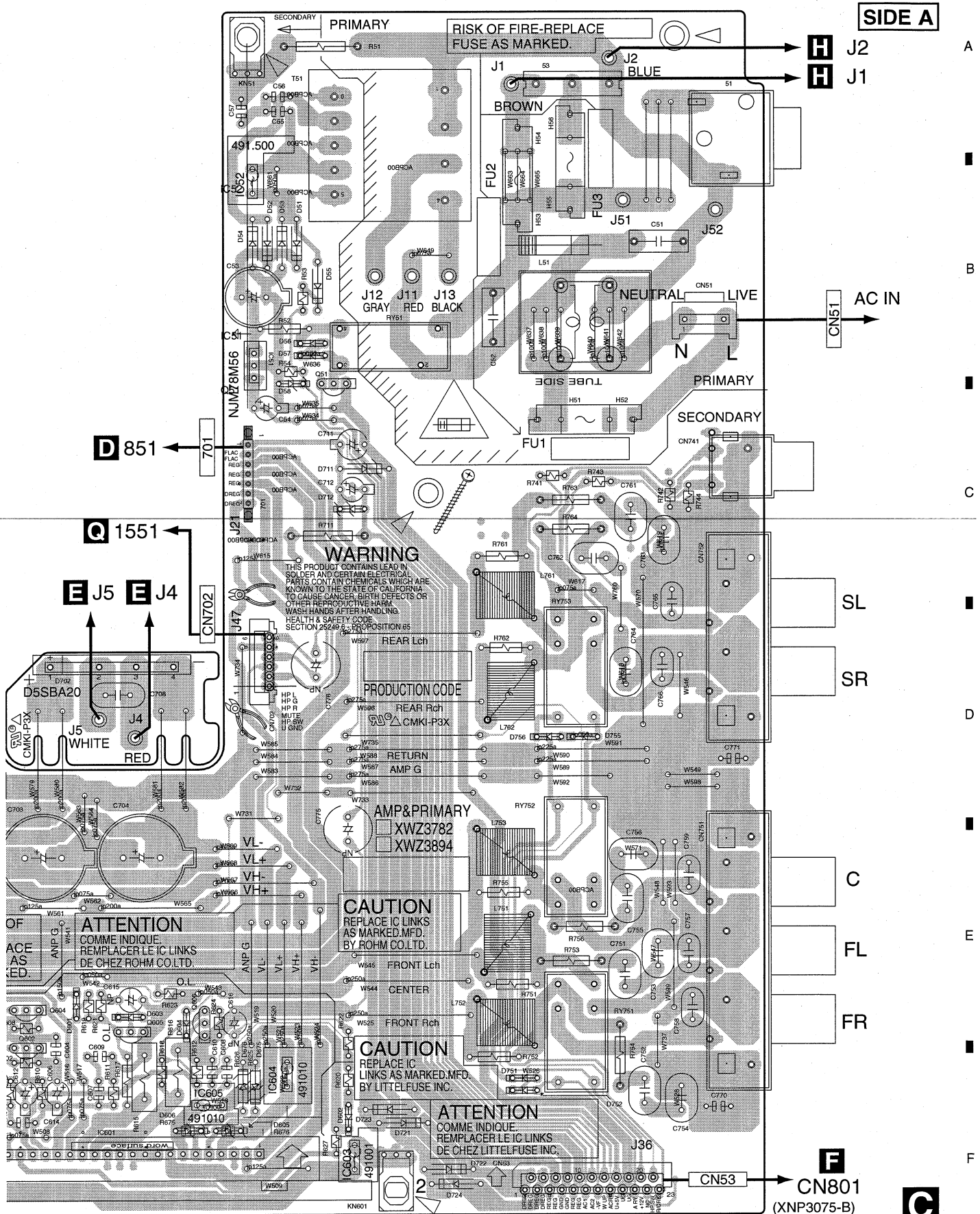
(ANP2022-B)

B**B**

4.5 AMP & PRIMARY and AMP INPUT ASSYS

SIDE A





A

B

C

D

E

F

SIDE A

Pioneer

XNP3089-A

FRONT DISPLAY

□ XWZ3908

C412
C420

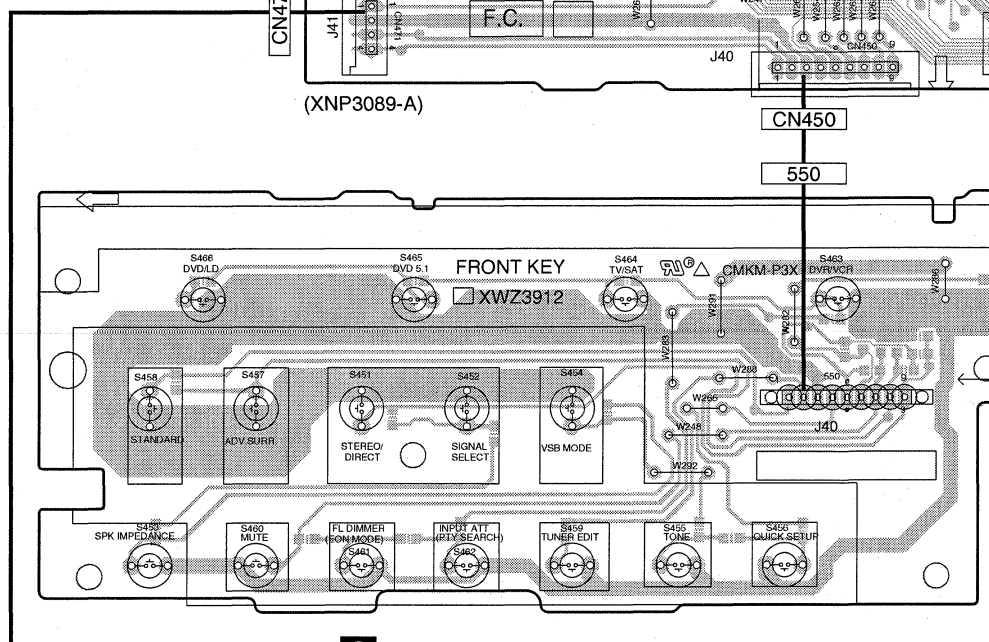
I.C.T.
F.C.

J41
1 PWIRON
2 GNDU
3 KEY3B
4 KEY3A

W267
W290
W262
W266
W290
W291
W247
W268
W264
W262
W265
W266
CA190

J40

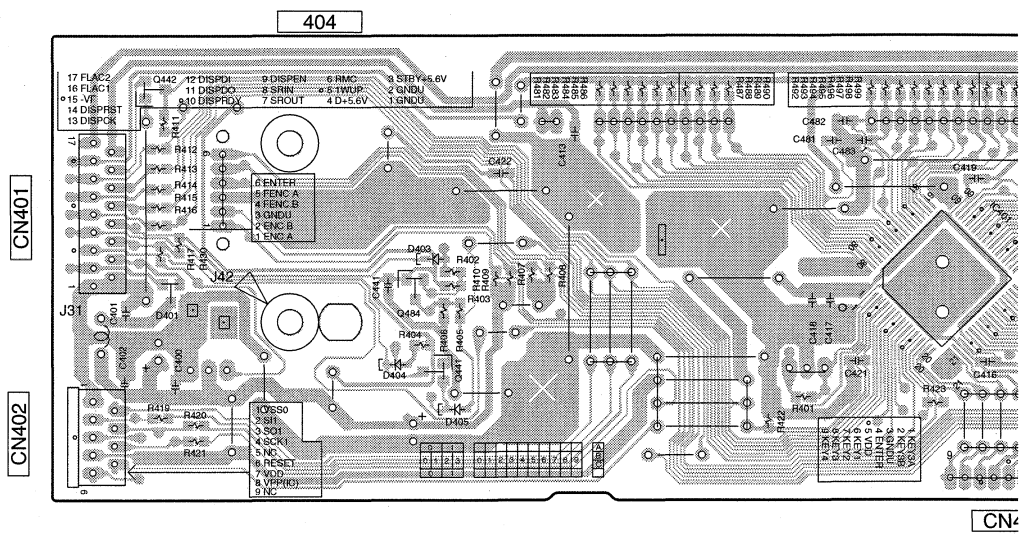
(XNP3089-A)



C CN702

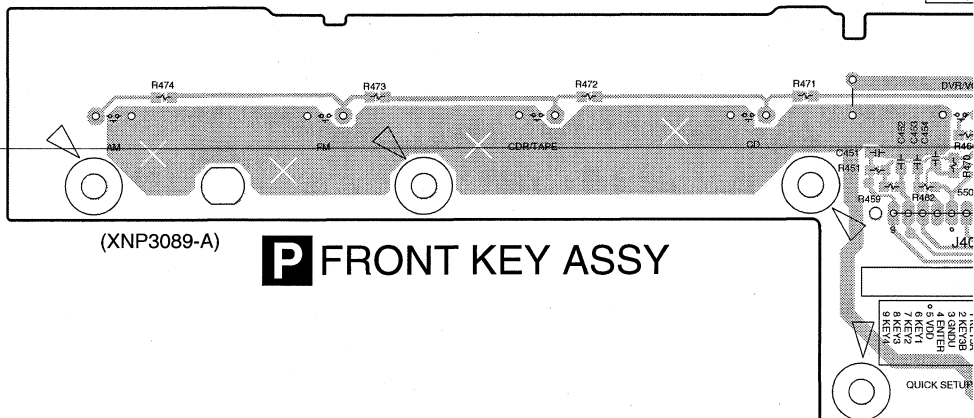
(XNP3089-A)

SIDE B



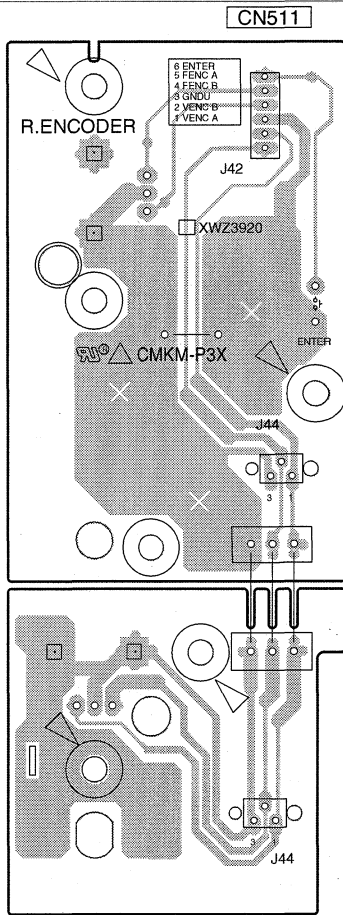
CN401

55



(XNP3089-A)

P FRONT KEY ASSY

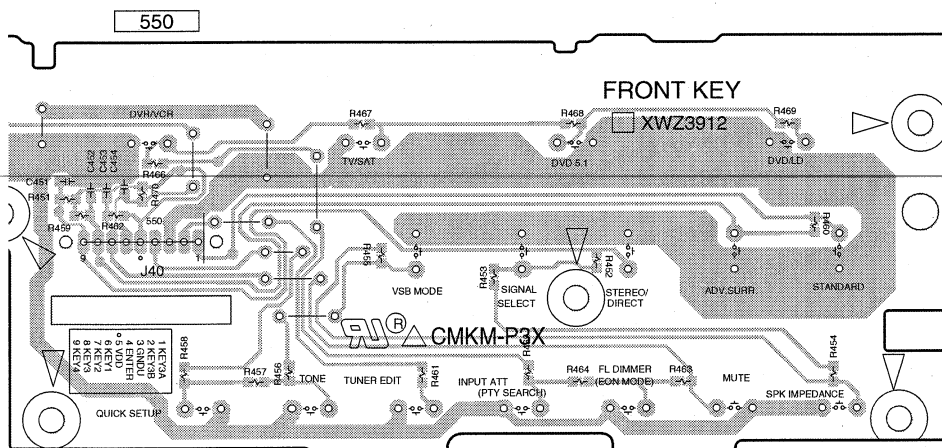
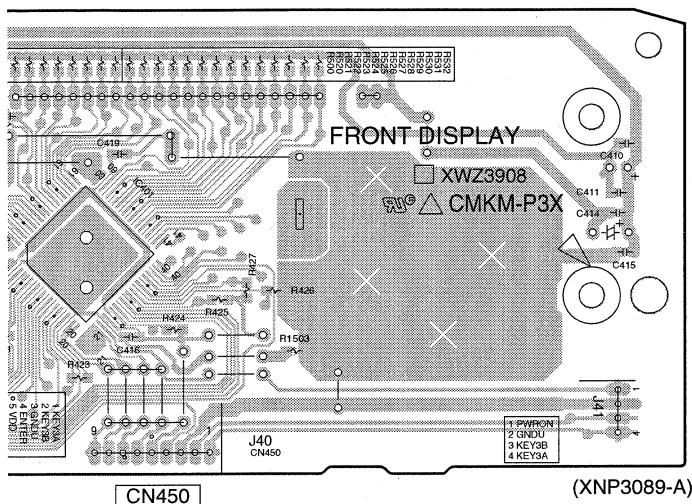


(XNP3089-A)

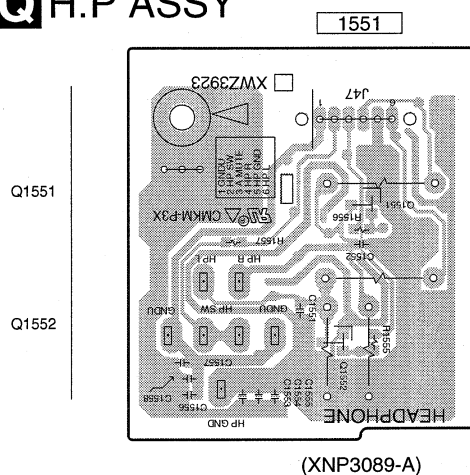
N R.ENCODER ASSY

M N P

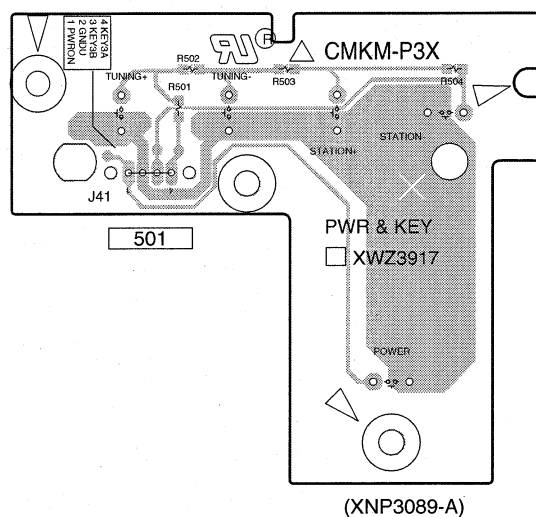
SIDE B



Q H.P ASSY



O P. SW &
FUNC. KEY ASSY



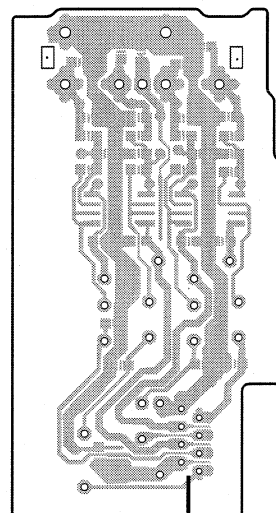
M O P Q

4.7 VIDEO and 5.1CH ASSYS

SIDE A

SIDE A

J 5.1CH ASSY

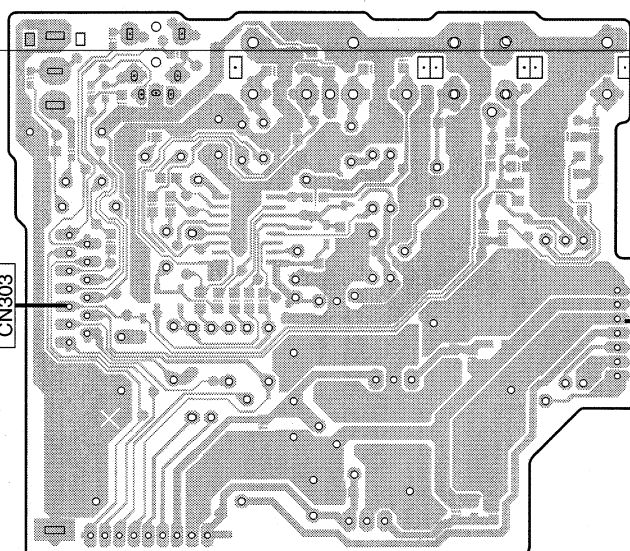


(XNP3089-A)

CN307

A CN105

I VIDEO ASSY



(XNP3089-A)

A CN104

CN303

CN302

F CN803

Q302

Q301

I J

50

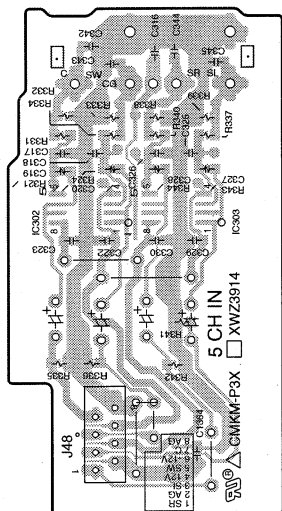
I J

VSX-415-K

SIDE B

SIDE B

J 5.1CH ASSY

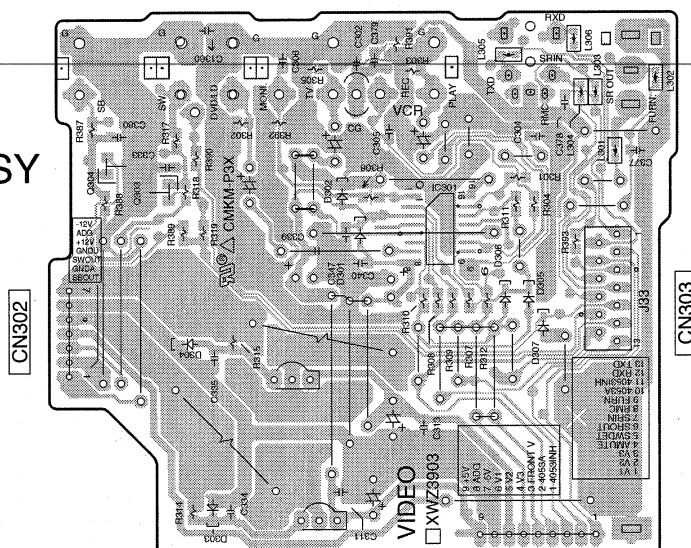


IC302
IC303

CN307

(XNP3089-A)

VIDEO ASSY



Q304
Q303
IC301

CN302

CN303

(XNP3089-A)

5. ELECTRICAL PARTS LIST

NOTES: ● Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

● The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

● When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω $\rightarrow$ 56 x 10¹ $\rightarrow$ 561 RD1/4PU 561 J
47k Ω $\rightarrow$ 47 x 10³ $\rightarrow$ 473 RD1/4PU 473 J
0.5 Ω $\rightarrow$ R50 RN2H R50 K
1 Ω $\rightarrow$ 1R0 RS1P 1R0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω $\rightarrow$ 562 x 10¹ $\rightarrow$ 5621 RN1/4PC 5621 F

Mark No.	Description	Part No.	Mark No.	Description	Part No.
LIST OF ASSEMBLIES					
1..MAIN ASSY		XWK3148	IC102		NJM2100M
1..DSP ASSY		AWX8418	IC9001		PD5963C
NSP 1..AMP & PS ASSY		XWK3152	IC110-IC112		UPC4570G2
2..AMP & PRIMARY ASSY		XWZ3894	Q165, Q166, Q321, Q322		2SC3326
2..TRANS2 ASSY		XWZ3808	Q341, Q342, Q361, Q362, Q395		2SC3326
2..TRANS3 ASSY		XWZ3812	Q5001		2SD1664
2..REGULATOR ASSY		XWZ3796	Q229, Q230		2SK208
2..AMP INPUT ASSY		XWZ3800	Q167, Q231, Q9002-Q9005		DTA124EK
2..TRANS1 ASSY		XWZ3805	Q9008		DTA143TK
NSP 1..COMPLEX ASSY		XWK3166	Q232		DTC124EK
2..VIDEO ASSY		XWZ3903	Q168, Q9001		DTC143EK
2..5.1CH ASSY		XWZ3914	Q9007		DTC143TK
2..FRONT DISPLAY ASSY		XWZ3908	D103-D108, D229, D230, D301		1SS355
2..R.ENCODER ASSY		XWZ3920	D311, D312, D9001-D9013		1SS355
2..P.SW & FUNC.KEY ASSY		XWZ3917	D101, D102		RB501V-40
2..FRONT KEY ASSY		XWZ3912	D5007		UDZS10(B)
2..H.P. ASSY		XWZ3923	D331, D332		UDZS6R8(B)
1..FM/AM TUNER UNIT		AXX7172			

COILS AND FILTERS

L9001, L9002 CHIP SOLID INDUCTOR	ATL7002
L9003	LFEA2R2J
L101-L104, L111, L112, L5002	QTL1013
CHIP SOLID INDUCTOR	

CAPACITORS

C9003 (0.22F/5.6V)	ACH7144
C151, C152, C243, C244, C263	CCSRCH101J50
C317, C318, C323, C324	CCSRCH101J50
C343, C344, C363	CCSRCH101J50
C1031, C1041, C117, C118	CCSRCH220J50
C205-C208, C245-C248, C265	CCSRCH331J50
C267	CCSRCH331J50
C203, C204	CCSRCH471J50
C366	CEANP4R7M50
C123-C128, C131-C138	CEAT100M50
C141, C142, C167, C168	CEAT100M50
C209, C210, C213, C214	CEAT100M50
C249, C250, C269, C270	CEAT100M50
C301-C306, C321, C322	CEAT100M50
C341, C342, C361, C362	CEAT100M50
C5007	CEAT101M16
C169	CEAT221M6R3
C201, C202, C241, C242	CEAT2R2M50
C261, C262, C9005	CEAT2R2M50
C9007	CEAT331M6R3
C325, C326, C345, C346, C365	CEAT470M25
C155, C156	CEAT470M50
C333, C334	CEAT471M10

Mark No.	Description	Part No.
AMP & PS ASSY		
OTHERS		
J21 JUMPER WIRE		D20PYY0715E
J6 LEAD WIRE UNIT		DB215NB0
COMPLEX ASSY		
OTHERS		
J41 JUMPER WIRE 4P		D20PYY0411E
J42 6P JUMPER WIRE		D20PYY0608E
J47 JUMPER WIRE 6P		D20PYY0630E
J40 JUMPER WIRE 7P		D20PYY0907E
MAIN ASSY		
SEMICONDUCTORS		
IC108		BD3813KS
IC101		BD3841FS
IC103-IC105, IC107		HA17558AF

Mark No.	Description	Part No.
C9013	C165, C166, C370	CEAT471M6R3 CEAT4R7M50
C170	C320, C392, C5001, C9015, C9016 C115, C116, C153, C154, C171 C179, C180, C199, C215-C218 C251, C252, C266, C271, C272	CKSQYB104K16 CKSRYB102K50 CKSRYB103K50 CKSRYB103K50 CKSRYB103K50
C319, C327-C330, C347, C348 C367, C368, C5002, C9004, C9008 C9017 C219, C220, C309-C312 C5003, C9006		CKSRYB103K50 CKSRYB103K50 CKSRYB103K50 CKSRYB104K16 CKSRYB105K10
C264 C257, C258, C277, C278 C307, C308, C364 C9011, C9014 C268		CKSRYB223K25 CKSRYB472K50 CKSRYB472K50 CKSRYB473K16 CKSRYB562K50
C391		CKSRYF104Z16

RESISTORS

- △ R171, R172
- △ R173, R174
- △ R311, R312
- Other Resistors

- RS1/16S470J
- RS1/16S472J
- RS1LMF101J
- RS1/16S###J

OTHERS

- CN105 8P CONNECTOR
- CN103 11P CONNECTOR
- CN104 13P CONNECTOR
- CN101 17P CONNECTOR
- CN106, CN112 19P CONNECTOR

- 52044-0845
- 52044-1145
- 52044-1345
- 52045-1745
- 52045-1945

- CN109 18P 6P PIN JACK
- △ CN111 20P SOCKET
- JA103, JA104 PCB BINDER
- JA105 6P PIN JACK
- X9001 CERAMIC RESONATOR
(15.7MHz)

- KP200TA18L
- KP200TA20L
- XKB3017
- XKB3037
- XSS3004

B DSP ASSY SEMICONDUCTORS

- IC8201
- IC8401
- IC8501
- IC8901
- IC8902

- AK4114VQ
- AK4628VQE
- DSPD56367PV150
- NJM2391DL1-33
- NJU7223DL1-18

- IC8101
- IC8701
- IC8702
- IC8502
- Q8504

- TC74HCU04AF
- TC74LVX244FT
- TC74VHCT244AFT
- TC7WU04FU
- UMD2N

- Q8503
- D8501
- D8401
- D8402, D8502, D8503

- UN5112
- 1SS355
- DAN202K
- DAP202K

COILS AND FILTERS

- L8002, L8004, L8501, L8502
- CHIP SOLID INDUCTOR
- L8101-L8104, L8201, L8203, L8204
- L8401, L8402, L8504, L8701, L8702
- CHIP SOLID INDUCTOR

- ATL7002
- QTL1013
- QTL1013

Mark No.	Description	Part No.
CAPACITORS		

- C8209, C8210
- C8421
- C8107, C8112
- C8007, C8008, C8109, C8201, C8212
- C8214, C8404, C8409-C8414

- CCSRCH100D50
- CCSRCH101J50
- CCSRCH470J50
- CCSRCH471J50
- CCSRCH471J50

- C8416, C8417, C8419, C8505, C8507
- C8509, C8511, C8512, C8515, C8518
- C8520, C8522, C8524, C8526, C8528
- C8530, C8532, C8534, C8536, C8539
- C8541, C8543, C8545, C8551, C8703

- CCSRCH471J50
- CCSRCH471J50
- CCSRCH471J50
- CCSRCH471J50
- CCSRCH471J50

- C8706
- C8548, C8549
- C8701, C8704
- C8105, C8406, C8415, C8546, C8547
- C8902, C8904

- CCSRCH471J50
- CCSRCH8R0D50
- CEVW100M16
- CEVW101M16
- CEVW101M16

- C8217, C8225, C8408
- C8204, C8555
- C8009, C8104, C8114, C8405, C8418
- C8517, C8554
- C8010, C8115, C8202, C8207, C8213

- CEVW470M6R3
- CKSRYB102K50
- CKSRYB103K50
- CKSRYB103K50
- CKSRYB104K16

- C8215, C8407, C8420, C8422, C8504
- C8513, C8521, C8523, C8525, C8527
- C8529, C8531, C8533, C8535
- C8537, C8538, C8540, C8542, C8544
- C8550, C8702, C8705, C8901, C8903

- CKSRYB104K16
- CKSRYB104K16
- CKSRYB104K16
- CKSRYB104K16
- CKSRYB104K16

- C8110, C8516
- C8514
- C8203

- CKSRYB105K6R3
- CKSRYB333K16
- CKSRYB473K50

RESISTORS

- R8506
- R8201
- Other Resistors

- RAB4C101J
- RS1/16S1802F
- RS1/16S###J

OTHERS

- CN8012 19P CONNECTOR
- JA8101 2P PIN JACK
- JA8102 OPT. LINK IN
- CN8017 10P CONNECTOR
- CN8003 13P SOCKET

- 52045-1945
- AKB7131
- GP1FA513RZB
- VKN1414
- XKP3077

- CN8007 19P SOCKET
- X8501 CRYSTAL RESONATOR
(20MHz)
- X8201 CRYSTAL RESONATOR
(24.576MHz)

- XKP3080
- VSS1171
- XSS3003

C AMP & PRIMARY ASSY SEMICONDUCTORS

- △ IC603 PROTECTOR(1A)
- △ IC604-IC607 PROTECTOR(10A)
- △ IC701, IC702 IC PROTECTOR
- △ IC51
- △ IC601

- AEK7009
- AEK7022
- ICP-N10
- NJM78M56FA
- PAC010A

- △ IC602
- Q703, Q721
- △ Q702
- Q691, Q692
- Q704, Q722

- PAC011A
- 2SA1145
- 2SA2005
- 2SC1740S
- 2SC1845

- Q605, Q606, Q633, Q655, Q656
- △ Q701

- 2SC2240
- 2SC5511

1	2	3	4
Mark No.	Description	Part No.	Mark No. Description Part No.
	Q601-Q604, Q631, Q632 Q651-Q654 Q51	2SC5974A 2SC5974A DTC143ES	CN751 6P SPEAKER TERMINAL 701 7P CABLE HOLDER XKE3012 XKP3047
A	D56, D601-D604, D631, D632 D651-D654, D752, D756 ⚠ D701, D702 D675-D678 D711	1SS133 1SS133 D5SBA20(B) MTZJ16A MTZJ22D	D TRANS2 ASSY SEMICONDUCTORS ⚠ IC851-IC853 PROTECTOR(1.6A) AEK7012
	D58, D712 ⚠ D51-D55, D721-D724	MTZJ5.1B S5688G	OTHERS 851 7P CABLE HOLDER XKP3047
	COILS AND FILTERS L751-L753, L761, L762 AF COIL	ATH1004	E TRANS3 ASSY TRANS3 ASSY has no service part.
B	SWITCHES AND RELAYS ⚠ RY51 RY751-RY753	XSR3006 XSR3007	F REGULATOR ASSY SEMICONDUCTORS ⚠ IC803, IC804 ⚠ IC801, IC805 ⚠ IC806 ⚠ IC802 Q801, Q803 Q802, Q804 D809-D811 ⚠ D801-D804 NJM78M05FA NJM78M12FA NJM78M56FA NJM79M12FA DTA124ES DTC114ES MTZJ6.2B S5688G
	CAPACITORS C707, C708 (0.01/AC250V) C607-C610, C634, C635 C657-C660 C615, C616, C638, C665, C666 C775, C776 C712 C611, C612, C636, C661, C662 C711 C53 C692 C54 C605, C606, C633, C655, C656 C705, C706 C613, C614, C637, C663, C664 C691 C603, C604, C632, C653, C654 C55-C57 C751, C752, C755, C761, C762 C51, C52 C703, C704 (3300/42V) C701, C702 (5600/71V)	ACG1005 CCPUCH6R8K50 CCPUCH6R8K50 CEANP2R2M50 CEANP470M50 CEAT101M10 CEAT101M16 CEAT101M35 CEAT102M16 CEAT221M10 CEAT470M25 CEAT4R7M50 CEHAT100M2A CKPUYB101K50 CKPUYB102K50 CKPUYB331K50 CKPUYF103Z25 CQMBA104J50 XCG3009 XCH3012 XCH3013	CAPACITORS C811, C815 C813 C801, C802 C809 C808 C805, C806 C803, C804, C807, C810, C812 C814 RESISTORS R801 OTHERS CN801 23P CONNECTOR CN804 18P PLUG CN802 20P PLUG CN803 7P PLUG CN805 13P PLUG CN806 19P PLUG 52045-2345 KM200TA18 KM200TA20 KM200TA7 XKP3066 XKP3069
	RESISTORS ⚠ R615, R616, R638, R665, R666 (0.22 /5W) ⚠ R51 (2.2M 1/2W) ⚠ R52 ⚠ R751, R752, R755, R761, R762 ⚠ R753, R754, R756, R763, R764 ⚠ R711 Other Resistors	ACN7094 ACN7094 RCN1080 RD1/2PM270J RD1/4PUF101J RS1LMF4R7J RS2LMF392J RD1/4PU###J	G AMP INPUT ASSY OTHERS CN254 19P CONNECTOR CN253 16P SOCKET 52044-1945 KP200TA16L
	OTHERS CN53 23P CONNECTOR CN702 6P JUMPER CONNECTOR CN741 2P PIN JACK 51 AC SOCKET 1-P H51-H54, H701, H702 FUSE CLIP ⚠ T51 STANDBY TRANSFORMER CN601 16P PLUG ⚠ CN51 AC CODE SOCKET KN51, KN601 EARTH METAL FITTING CN752 4P SPEAKER TERMINAL	52045-2345 52147-0610 AKB7008 AKP1060 AKR7001 ATT7043 KM200TA16 RKP1751 VNF1084 XKE3010	H TRANS1 ASSY TRANS1 ASSY has no service part. I VIDEO ASSY SEMICONDUCTORS

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
IC301		NJM2595M
Q302		2SA1515
Q301		2SC3377
Q303		2SC5938A
D301, D302, D305, D306		1SS355
D303, D304		UDZS6R2(B)
<u>CAPACITORS</u>		
C347		CCSRCH470J50
C307-C310, C312, C314, C338		CEAT470M25
C1360, C302		CKSRYB103K50
C339, C340		CKSRYB104K25
C304-C306		CKSRYB221K50
C333		CKSRYB331K50
C311, C313		CKSRYB473K25
<u>RESISTORS</u>		
 R313, R316		RS3LMF560J
Other Resistors		RS1/16S###J
<u>OTHERS</u>		
CN303 13P CONNECTOR		52044-1345
CN302 7P SOCKET		KP200TA7L
390 PCB BINDER		VEF1040
JA308 6P PIN JACK		XKB3049

J 5.1CH ASSY

<u>CAPACITORS</u>	
C342-C345	CCSRCH101J50
C321, C324, C331, C332	CEAT4R7M50
C1364	CKSRYB102K50
C316	CKSRYB103K50
C317, C318, C325, C326	CKSRYB221K50
<u>RESISTORS</u>	
All Resistors	RS1/16S###J
<u>OTHERS</u>	
CN307 8P CONNECTOR	52044-0845
CN309 PIN JACK (4P)	XKB3035

M FRONT DISPLAY ASSY
SEMICONDUCTORS

IC402	GP1UM27XK0VF
IC401	PE5420A
Q484	2SA1037K
Q442	DTC124EK
D403	1SS355
D401	DAN202K

COILS AND FILTERS

L401 LFEA2R2J

CAPACITORS

C482, C483	CCSRCH221J50
C481	CCSRCH471J50
C442	CEAL470M10
C403	CEAT221M6R3
C412	CEAT470M50
C415	CKSRYP102K50
C401, C402, C410, C411, C419	CKSRYP103K50
C441	CKSRYP103K50

7	8
<u>Mark No.</u>	<u>Description</u>
C418, C421	CKSRYB104K16
C420	XCH3011

RESISTORS

All Resistors RS1/16S###J

OTHERS

404	6P CABLE HOLDER	51048-0600
CN401	17P CONNECTOR	52044-1745
CN471	4PJUMPER CONNECTOR	52151-0410
CN450	9PJUMPER CONNECTOR	52151-0910
CN402	EFC CONNECTOR 9P	52492-0920

V401	FL TUBE	XAV3022
X401	CERAMIC RESONATOR	VSS1142
	(5MHZ)	

N R.ENCODER ASSY SWITCHES AND RELAYS

S511	VSG1024
S513	XSX3005
S512	XSX3006

OTHERS

CN511 7P CABLE HODER 52147-0610

Q P.SW & FUNC. ASSY
SWITCHES AND RELAYS

S501-S505	VSG1024
RESISTORS	
All Resistors	RS1/16S###J

OTHERS

501	4P CABLE HOLDER	51048-0400
-----	-----------------	------------

P FRONT KEY ASSY SWITCHES AND RELAYS

S451-S470 VSG1024

CAPACITORS

C451-C454 CKSRYB102K50

RESISTORS

All Resistors RS1/16S###J

OTHERS

550	9P CABLE HOLDER	51048-0900
-----	-----------------	------------

Q H.P. ASSY
SEMICONDUCTORS

Q1551, Q1552 2SC5938A

CAPACITORS

C1554,C1557	CCSRCH471J50
C1553,C1556	CKSRYB103K50
C1555,C1558	CKSRYB104K16
C1551,C1552	CKSRYB223K50

RESISTORS

 R1553,R1554 RS1LMF151J

1 2 3 4

6. ADJUSTMENT

There is no information to be shown in this chapter.

Mark No.	Description	Part No.
⚠ R1551,R1552	Other Resistors	RS2LMF331J
		RS1/16S###J

A OTHERS		
1551 6P CABLE HOLDER		51048-0600
JA1551 HEADPHONE JACK		RKB1014
KN1551 WRAPPING TERMINAL		VNF1084

FM/AM TUNER UNIT

FM/AM TUNER UNIT has no service part.

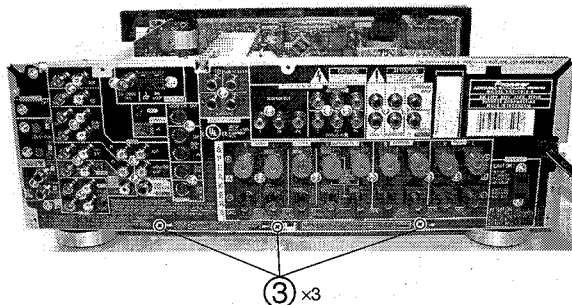
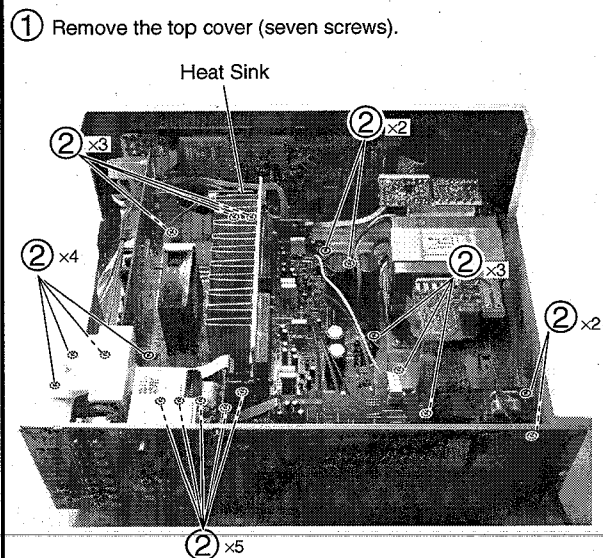
7. GENERAL INFORMATION

7.1 DIAGNOSIS

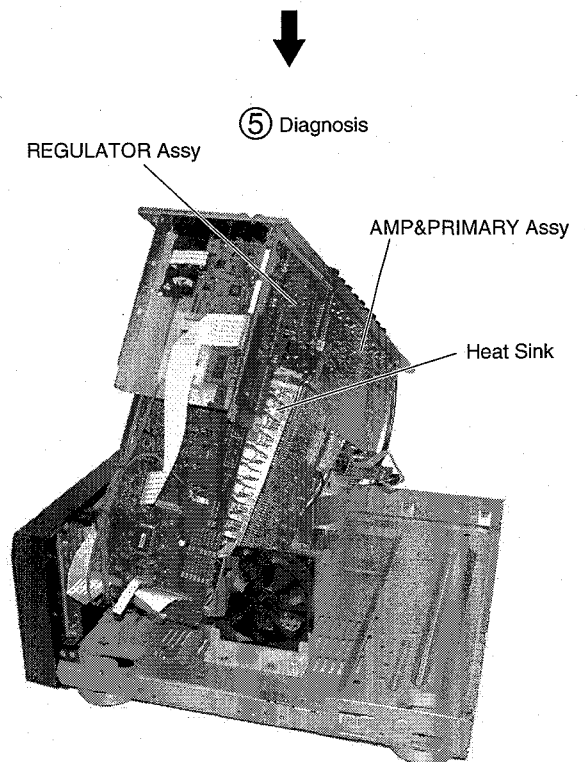
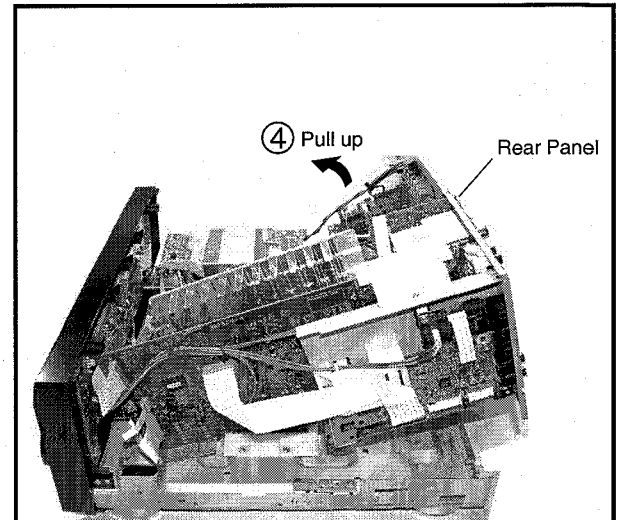
7.1.1 DISASSEMBLY

Note: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

■ Diagnosis



Note : This photograph may show a different model.
However, the method for disassembly is the same.



Note : This photograph may show a different model.
However, the method for disassembly is the same.

Note : The unit does not operate when the screws of Speaker Terminal are taken off from Rear Panel.

Heat-sink caution in the disassembling : Because Heat-sink becomes hot, please pay attention.

A

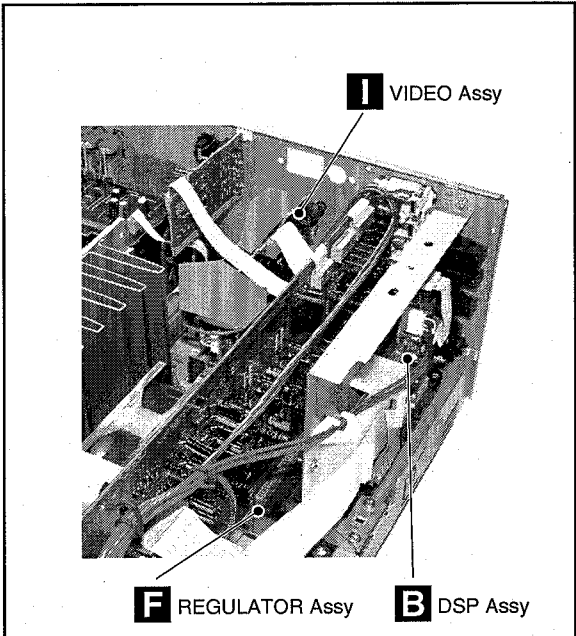
B

C

D

E

F



C AMP&PRIMARY Assy

J 5.1CH Assy

FM/AM TUNER UNIT

D TRANS 2 Assy

A MAIN Assy

G AMP INPUT Assy

H TRANS 1 Assy

E TRANS 3 Assy

N R. ENCODER Assy

M FRONT DISPLAY Assy

P FRONT KEY Assy

Q H.P. Assy

O P. SW & FUNC. KEY Assy

7.2 PARTS

7.2.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

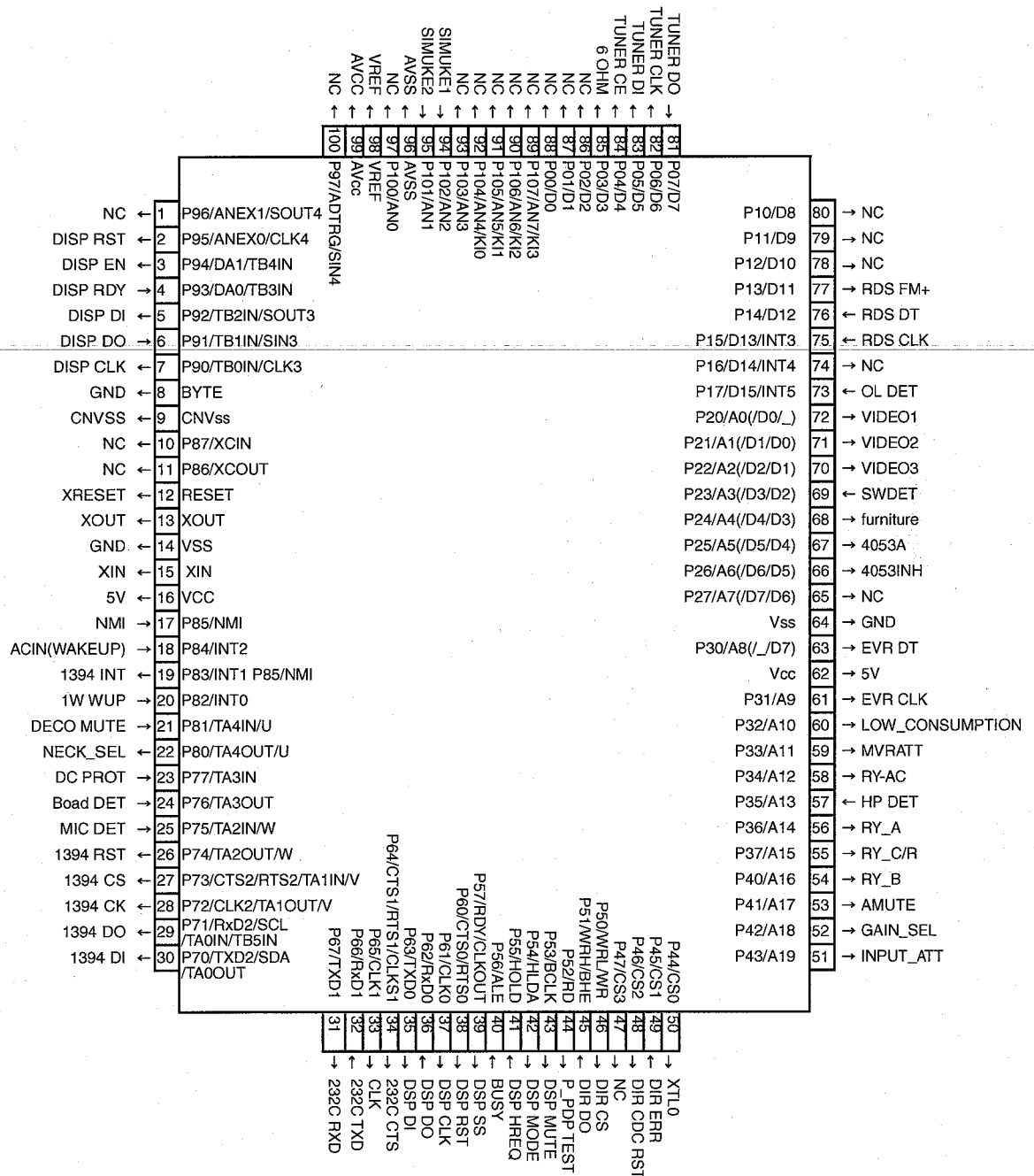
• List of IC

PD5963C, PE5420A

■ PD5963C (MAIN ASSY : IC9001)

• System Control MCU

■ Pin Arrangement (Top View)



• Pin Function

No.	Port	Pin Name	I/O	Pin Function
1	P96/ANEX1/SOUT4	NC	I/O	
2	P95/ANEX0/CLK4	DISP RST	I/O	Reset signal to display u-com
3	P94/DA1/TB4IN	DISP EN	I/O	Enable signal to display u-com
4	P93/DA0/TB3IN	DISP RDY	I/O	Ready signal from display u-com
5	P92/TB2IN/SOUT3	DISP DI	I/O	Data out to display u-com
6	P91/TB1IN/SIN3	DISP DO	I/O	Data input from display u-com
7	P90/TB0IN/CLK3	DISP CLK	I/O	Clock signal to display u-com
8	BYTE	GND		
9	CNVss	CNVSS		
10	P87/XCIN	NC	I/O	
11	P86/XCOUT	NC	I/O	
12	RESET	XRESET	RST	
13	XOUT	XOUT	OSC	
14	VSS	GND	GND	
15	XIN	XIN	OSC	
16	VCC	5V	5V	
17	P85/NMI	NMI	I	No use
18	P84/INT2	ACIN(WAKEUP)	I/O	AC pulse input
19	P83/INT1 P85/NMI	1394 INT	I/O	No use (Standby for 1394)
20	P82/INT0	1W WUP	I/O	Wake up signal from display u-com
21	P81/TA4IN/U	DECO MUTE	I/O	1st DSP Boot success detect port
22	P80/TA4OUT/U	NECK_SEL	I/O	5.1ch, surround mode and A+B Stereo : H / Stereo : L
23	P77/TA3IN	DC PROT	I/O	AMP DC detect
24	P76/TA3OUT	Boad DET	I/O	AMP INPUT ASSY falling off detect, H : detected
25	P75/TA2IN/W	MIC DET	I/O	MIC detect (No Use)
26	P74/TA2OUT/W	1394 RST	I/O	No use (Standby for 1394)
27	P73/CTS2/RTS2/TA1IN/V	1394 CS	I/O	No use (Standby for 1394)
28	P72/CLK2/TA1OUT/V	1394 CK	I/O	No use (Standby for 1394)
29	P71/RxD2/SCL/TA0IN/TB5IN	1394 DO	I/O	No use (Standby for 1394)
30	P70/TXD2/SDA/TA0OUT	1394 DI	I/O	No use (Standby for 1394)
31	P67/TXD1	232C RXD	I/O	No use, fixed to "L" (For rewriting 232C (Data output))
32	P66/RxD1	232C TXD	I/O	No use, fixed to "L" (For rewriting 232C (Data input))
33	P65/CLK1	CLK	I/O	No use (It is necessary when writing for JIG)
34	P64/CTS1/RTS1/CLKS1	232C CTS	I/O	No use, fixed to "L" (For rewriting 232C (Admit communication))
35	P63/TXD0	DSP DI	I/O	Data output signal for communication with DSP and DIR
36	P62/RxD0	DSP DO	I/O	Data input signal for communication with DSP
37	P61/CLK0	DSP CLK	I/O	Clock signal for communication with DSP and DIR
38	P60/CTS0/RTS0	DSP RST	I/O	Reset signal for DSP
39	P57/RDY/CLKOUT	DSP SS	I/O	Slave select signal to DSP
40	P56/ALE	BUSY	I/O	Use it in MCACC
41	P55/HOLD	DSP HREQ	I/O	DSP error detect signal
42	P54/HLDA	DSP MODE	I/O	Mode select of DSP (H : ROMmode, L : RAM(PPP) mode)
43	P53/BCLK	DSP MUTE	I/O	DSP ASSY mute
44	P52/RD	P_PDPTST	I/O	Fixed to "L" during normal operation. (for SR+ testmode only)
45	P51/WRH/BHE	DIR DO	I/O	Data input signal for communication with DIR/DAC
46	P50/WRL/WR	DIR CS	I/O	Chip select signal for communication with DIR/DAC
47	P47/CS3	NC	I/O	
48	P46/CS2	DIR CDC RST	I/O	Reset signal for DIR CODEC
49	P45/CS1	DIR ERR	I/O	lock/unlock signal
50	P44/CS0	XTL0	I/O	DIR X'tal change

• Pin Function

No.	Port	Pin Name	I/O	Pin Function
51	P43/A19	INPUT_ATT	I/O	Analog input ATT(H : ATT ON)
52	P42/A18	GAIN_SEL	I/O	Gain select (5.1ch and Stereo of analog input : H)
53	P41/A17	AMUTE	I/O	System mute (L : Mute ON)
54	P40/A16	RY_B	I/O	Speaker B relay ON/OFF
55	P37/A15	RY_C/R	I/O	Rear/Center Speaker relay ON/OFF
56	P36/A14	RY_A	I/O	Speaker A relay ON/OFF
57	P35/A13	HP DET	I/O	HP detect, H : detected
58	P34/A12	RY-AC	I/O	AC relay ON/OFF
59	P33/A11	MVRATT	I/O	ATT control of master volume (less than -15dB : L)
60	P32/A10	LOW_CONSUMPTION	I/O	If stop mode, port L, else H
61	P31/A9	EVR CLK	I/O	Clock signal for Function and E-volume
62	Vcc	5V	5V	
63	P30/A8(/_D7)	EVR DT	I/O	Data signal for Function and E-volume
64	Vss	GND	GND	
65	P27/A7(/D7/D6)	NC	I/O	
66	P26/A6(/D6/D5)	4053INH	I/O	Component terminal control
67	P25/A5(/D5/D4)	4053A	I/O	Component terminal control
68	P24/A4(/D4/D3)	furniture	I/O	Furniture control signal
69	P23/A3(/D3/D2)	SWDET	I/O	SWSP detect
70	P22/A2(/D2/D1)	VIDEO3	I/O	VIDEO input select
71	P21/A1(/D1/D0)	VIDEO2	I/O	VIDEO input select
72	P20/A0(/D0/_)	VIDEO1	I/O	NJM2296 control (VIDEO input select)
73	P17/D15/INT5	OL DET	I/O	Detect overload of AMP
74	P16/D14/INT4	NC	I/O	
75	P15/D13/INT3	RDS CLK	I/O	Fixed to "L".
76	P14/D12	DT	I/O	Fixed to "L".
77	P13/D11	FM+	I/O	Fixed to "L".
78	P12/D10	NC	I/O	
79	P11/D9	NC	I/O	
80	P10/D8	NC	I/O	
81	P07/D7	TUNER DO	I/O	Data input signal for tuner control
82	P06/D6	TUNER CLK	I/O	Clock signal for tuner control
83	P05/D5	TUNER DI	I/O	Data output signal for tuner control
84	P04/D4	TUNER CE	I/O	Chip select signal for tuner control
85	P03/D3	6 OHM	I/O	if stop mode, port L, else L/H depends on selection.
86	P02/D2	NC	I/O	
87	P01/D1	NC	I/O	
88	P00/D0	NC	I/O	
89	P107/AN7/KI3	NC	I/O	
90	P106/AN6/KI2	NC	I/O	
91	P105/AN5/KI1	NC	I/O	
92	P104/AN4/KI0	NC	I/O	
93	P103/AN3	NC	I/O	
94	P102/AN2	SIMUKE1	I/O	Input 1 to switch region
95	P101/AN1	SIMUKE2	I/O	Input 2 to switch region
96	AVSS	AVSS	GND	Connect to VSS
97	P100/AN0	NC	I/O	
98	VREF	VREF	5V	Connect to VCC
99	AVcc	AVCC	5V	Connect to VCC
100	P97/ADTRG/SIN4	NC	I/O	

• Pin Function

No.	Port	Pin Name	I/O	Pin Function
1	VDD1	+5V	-	positive power supply
2	VSS1	GND	-	ground potential
3	X1	Resonator	I	crystal connection for system clock oscillation
4	X2	Resonator	I	crystal connection for system clock oscillation
5	IC(VPP)	GND	-	
6	RESET	DISP RESET	I	receive reset signal from main u-com
7	P27/SCK1	DISP CK	I/O	clock signal from main u-com
8	P26/SI1	DISP DTI	I/O	datain from main u-com
9	P25/SO1	DISP DTO	I/O	data out to main u-com
10	P24/BUSY	DISP RDY	I/O	ready signal from main u-com
11	P23	NC	I/O	
12	P22	NC	I/O	
13	P21/SO3	NC	I/O	
14	P20/SCK3	NC	I/O	
15	P00/INTP0	DISP EN	I/O	enable signal from main u-com
16	P01/INTP1	NC	I/O	
17	P02/T1	SR IN	I/O	remote control signal input from main room
18	AVSS	GND	-	ground potential for A/D converter
19	ANI3	KEY IN4	I	
20	ANI2	KEY IN3	I	
21	ANI1	KEY IN2	I	
22	ANI0	KEY IN1	I	
23	VSS0	GND	-	ground potential for ports
24	AVDD	+5V	-	analog power voltage input to A/D converter
25	VDD0	+5V	-	positive power supply to ports
26	P64/FIP52	NC	I/O	
27	P63/FIP51	FEN A	I/O	MULTI JOG(Right)
28	P62/FIP50	FEN B	I/O	MULTI JOG(Left)
29	P61/FIP49	EN B	I/O	VOLUME JOG1(-)
30	P60/FIP48	EN A	I/O	VOLUME JOG1(+)
31	P57/FIP47	NC	I/O	
32	P56/FIP46	TEST	I/O	test mode input for checker
33	P55/FIP45	NC	I/O	
34	P54/FIP44	NC	I/O	
35	P53/FIP43	NC	I/O	
36	P52/FIP42	1W WUP	I/O	output wakeup signal to main u-com
37	P51/FIP41	VOL LED	I/O	LED Output
38	P50/FIP40	MCACC LED	I/O	LED Output
39	P47/FIP39	FUNC/AUX	O	LED Output
40	P46/FIP38	FUNC_TUNER	O	LED Output

A

• Pin Function

B

C

D

E

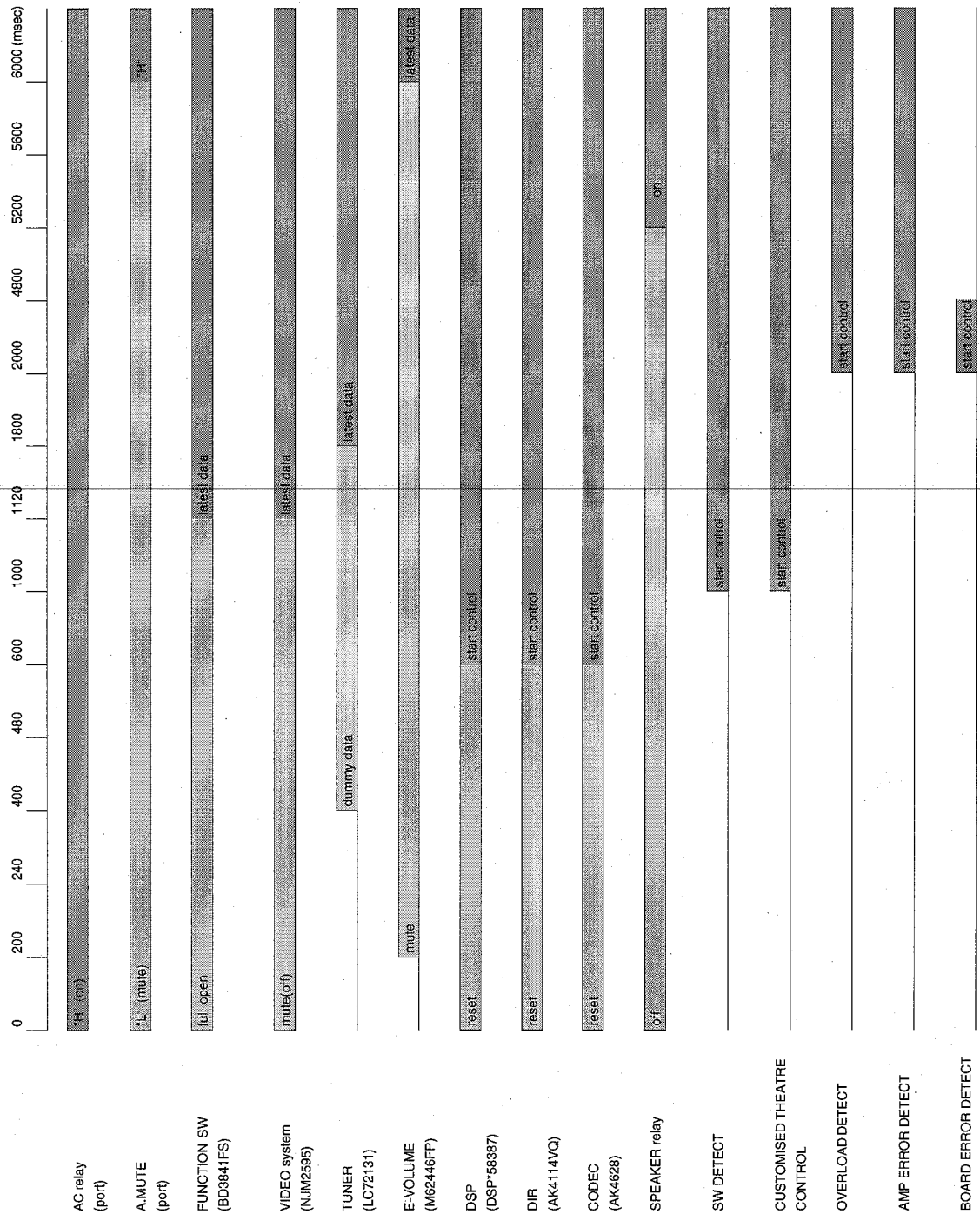
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No.	Port	Pin Name	I/O	Pin Function
41	FIP37/P45	FUNC_CDR	O	LED Output
42	FIP36/P44	FUNC_CD	O	LED Output
42	FIP35/P43	FUNC_DVD	O	LED Output
44	FIP34/P42	FUNC_TV	O	LED Output
45	FIP33/P41	FUNC_VCR	O	LED Output
46	FIP32/P40	FUNC_VIDEO	O	LED Output
47	FIP31/P37	S22	I/O	Display
48	FIP30/P36	S21	I/O	Display
49	FIP29/P35	S20	I/O	Display
50	FIP28/P34	S19	I/O	Display
51	FIP27/P33	S18	I/O	Display
52	FIP26/P32	S17	I/O	Display
53	FIP25/P31	S16	I/O	Display
54	FIP24/P30	S15	I/O	Display
55	FIP23	S14	O	Display
56	FIP22	S13	O	Display
57	FIP21	S12	O	Display
58	FIP20	S11	O	Display
59	VDD2	+5V	-	positive power supply to FIP controller.
60	VLOAD	VF	-	pull down resistor connection of FIP controller
61	FIP19	S10	O	Display
62	FIP18	S9	O	Display
63	FIP17	S8	O	Display
64	FIP16	S7	O	Display
65	FIP15	S6	O	Display
66	FIP14	S5	O	Display
67	FIP13	S4	O	Display
68	FIP12	S3	O	Display
69	FIP11	S2	O	Display
70	FIP10	S1	O	Display
71	FIP9	G10	O	Display
72	FIP8	G9	O	Display
73	FIP7	G8	O	Display
74	FIP6	G7	O	Display
75	FIP5	G6	O	Display
76	FIP4	G5	O	Display
77	FIP3	G4	O	Display
78	FIP2	G3	O	Display
79	FIP1	G2	O	Display
80	FIP0	G1	O	Display

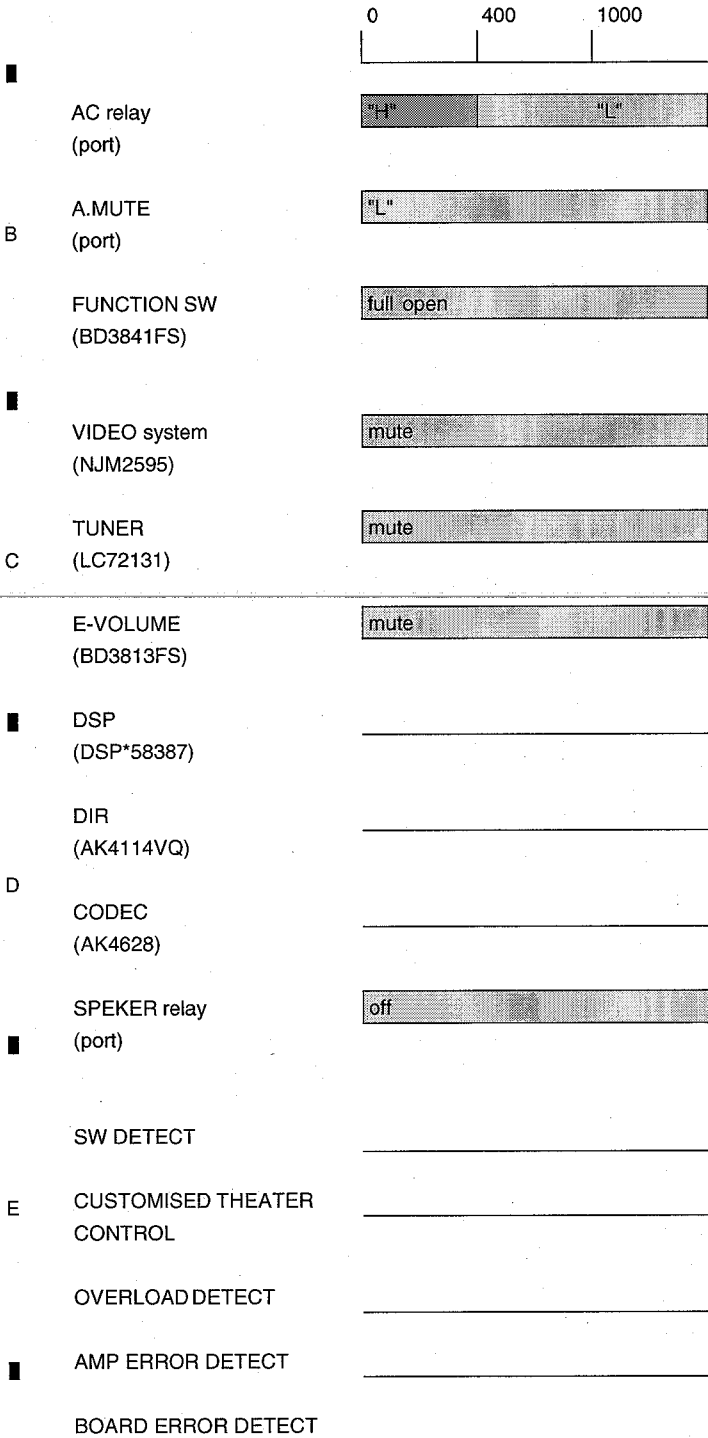
7.3 EXPLANATION

7.3.1 POWER ON AND OFF INITIAL TIMING CHART

■ POWER ON INITIAL TIMING CHART



A ■ POWER OFF INITIAL TIMING CHART

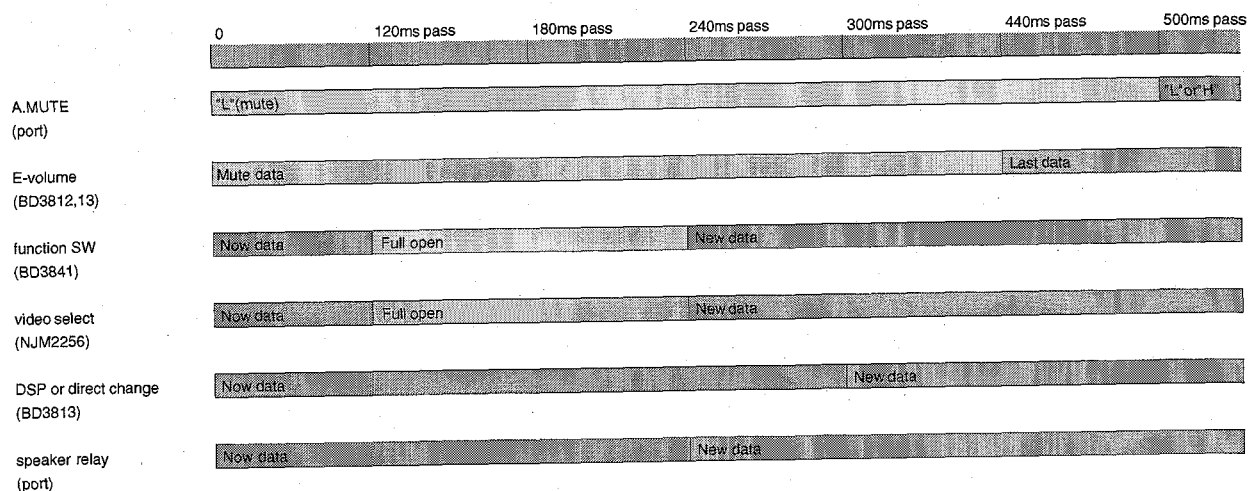


F

7.3.2 IC DATA TRANSMISSION TIMING CHART

■ IC data transmission timing chart

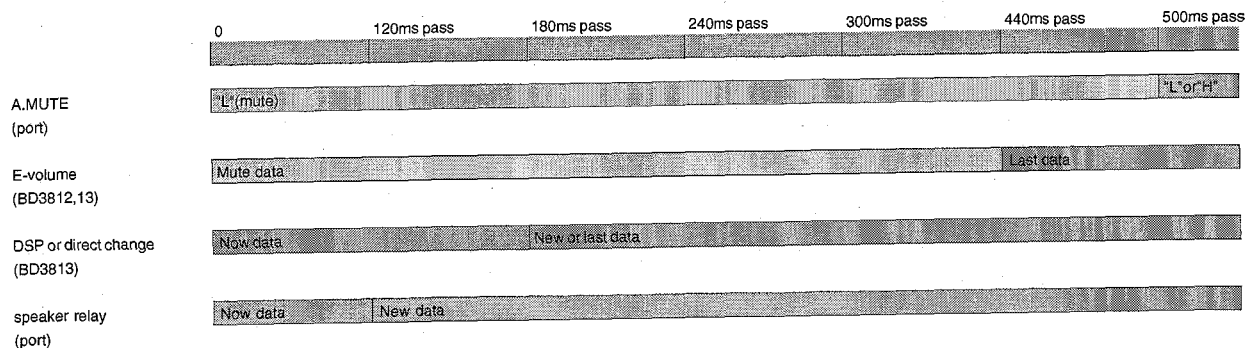
1. When function change



condition of mute cancel (system mute & E-volume mute)

- 1) when tuner mute during Tuner function
- 2) when communicate to DSP
- 3) when initial processing
- 4) when detect trouble of AMP DC
- 5) when detect overload of AMP
- 6) when Power off
- 7) when muting by key input

2. When except function change



condition of mute cancel (system mute & E-volume mute)

- 1) when tuner mute during Tuner function
- 2) when communicate to DSP
- 3) when initial processing
- 4) when detect trouble of AMP DC
- 5) when detect overload of AMP
- 6) when Power off
- 7) when muting by key input

A

B



I



III



7.3.4 AMPLIFIER SYSTEM PROTECTION OPERATION SPECIFICATION

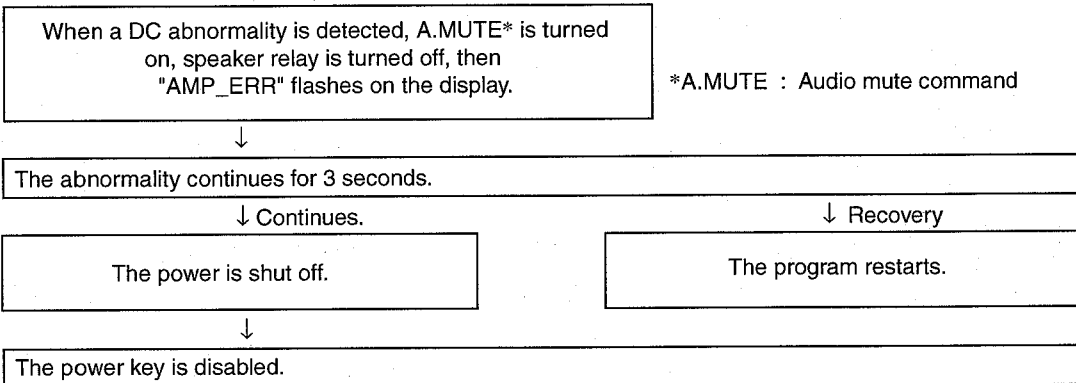
1. DC-abnormality detection

DC detection is only enabled 2 seconds after power-on.

If there is a fault in the power amplifier or a high-level signal lower than 5 Hz is input, the DC_DET port becomes "L".

If the "L" is detected, the microprocessor will perform as following flow chart.

In the case of simultaneous detection with the overload protection circuit, DC-abnormality detection is performed preferentially to overload detection.



But be switched on with the following methods.

① TESTMODE ON (A55F+A55F)

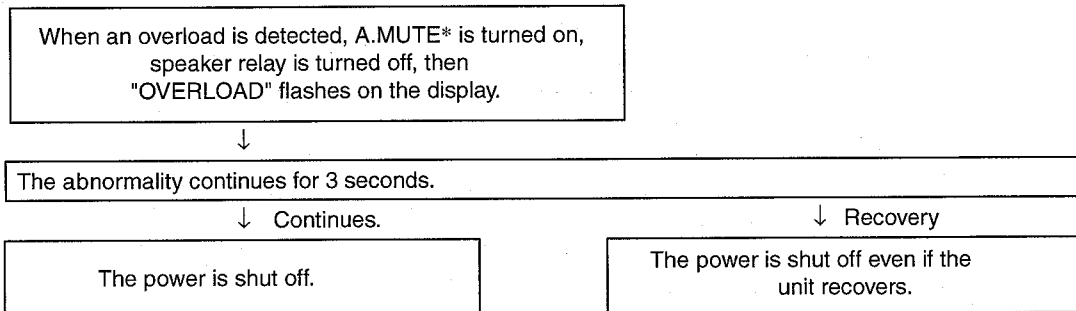
② When power off, push FRONT ENTER key + ADVANCED SURROUND key continuously 2sec.

(②: When a DC abnormality is detected and the power is shut off.)

2. Overload detection

If the speaker terminals are short-circuited or low-load driving is detected, the OL_DET port becomes "L".

If the "L" is detected, the microprocessor will perform as following flow chart.



3. Board detection

If the board connection from MAIN ASSY to AM & PRIMARY ASSY is interrupted, the BOARD_DET port becomes "H".

If the "H" is detected, the microprocessor will perform as following flow chart.

In the case of simultaneous detection with the overload protection circuit, Board detection is performed preferentially to DC-abnormality detection and Overload detection.

When an board error is detected, A.MUTE* is turned on,
speaker relay is turned off, then
"BOARD ERR" flashes on the display.

The abnormality continues for 3 seconds.

↓ Continues.

The power is shut off.

↓ Recovery

The power is shut off even if the
unit recovers.

7.3.5 AMPLIFIER FAILURE DIAGNOSIS FLOW CHART

■ Amplifier failure diagnosis flow chart

When DC detection is activated ("AMP_ERR" flashes on the display), failure (damage) of the power amplifier section is considered.

Caution:

When release the lock state of power key before repair, please be careful because there is the possibility that more damages will occur when turns on the power once again!

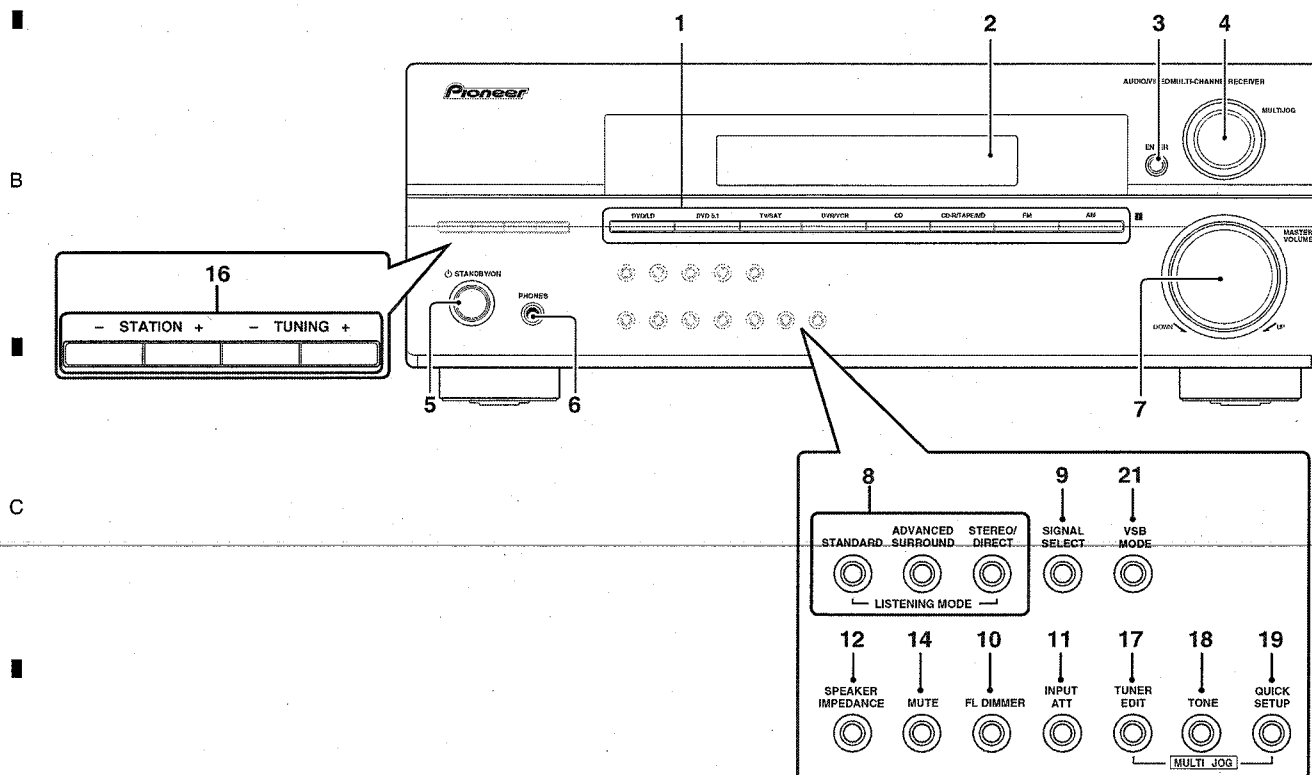
- According to a symptom, perform the following confirmation beforehand.

- 1) Is the operation of fan motor in normal condition?
- 2) Are there any Fuses and IC protectors open?
- 3) After turn on the power, confirm that the supply voltage of the point that can be measured is appropriate.
- 4) Whether the voltage of pin3 of IC601 or IC602 is equal to (VL-0.7V). If not (eg, equal to VH), then change the corresponding power pack IC601 or IC602.
- 5) Furthermore, check the output DC voltage of each channel of power pack IC601 and IC602 to limit the failure channel and identify the defect power pack.

- After identify the failure channel, check that each part is not damaged (resistor, diode... etc. value / open / short)

8. PANEL FACILITIES

A Front panel



1 Input select buttons

Press to select an input source.

2 Character display

See Display.

3 ENTER

4 MULTI JOG dial

The **MULTI JOG** dial performs a number of tasks. Use it to select options after pressing the designated **MULTI JOG** buttons.

5 STANDBY/ON

Switches the receiver between on and standby.

6 PHONES jack

Use to connect headphones. When the headphones are connected, there is no sound output from the speakers.

7 MASTER VOLUME

8 LISTENING MODE buttons

STANDARD

Press for Standard decoding and to switch between the various Pro Logic II and Neo:6 options.

ADVANCED SURROUND

Use to switch between the various surround modes.

STEREO/DIRECT (AUTO SURR)

Switches between direct and stereo playback. Direct playback bypasses the tone controls and channel levels for the most accurate reproduction of a source.

18 TONE

Press this button to access the bass and treble controls, which you can then adjust with the **MULTI JOG** dial.

19 QUICK SETUP

See Using the Quick Setup.

20 •••••

9 SIGNAL SELECT

Use to select an input signal.

10 FL DIMMER

Dims or brightens the display.

11 INPUT ATT

Attenuates (lowers) the level of an analog input signal to prevent distortion.

12 SPEAKER IMPEDANCE

Use to change the impedance setting

13 •••••

21 VSB MODE

Selects the Virtual Surround Back (VSB) mode.

14 MUTE

Mutes the sound (or restores the sound if it has been muted).

15 •••••

16 TUNING / STATION buttons

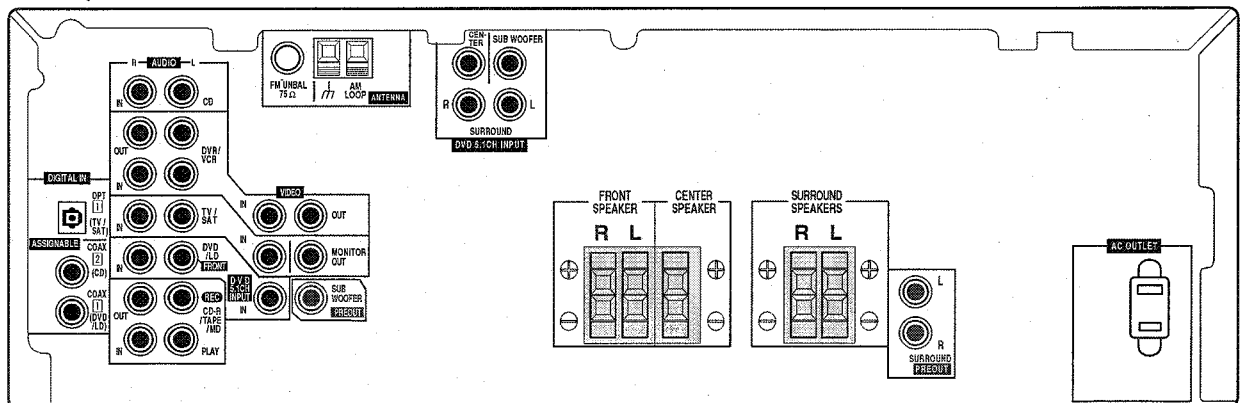
Selects the frequency and station presets when using the tuner.

17 TUNER EDIT

Press to memorize and name a station for recall.

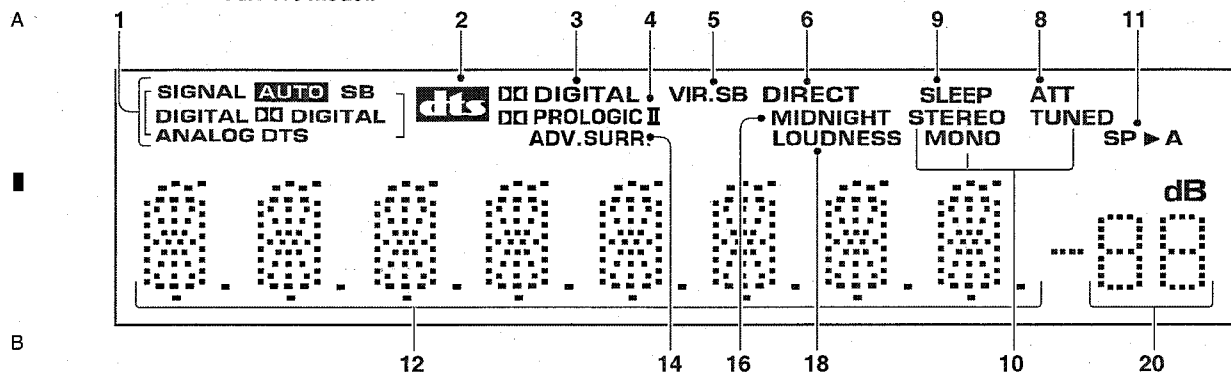
Rear panel

VSX-415



Display

VSX-415 model:



1 SIGNAL SELECT indicators

Lights to indicate the type of input signal assigned for the current component:

AUTO

Lights when **AUTO** signal select is on.

SB

Depending on the source, this lights when a signal with surround back channel encoding is detected.

DIGITAL

Lights when a digital audio signal is detected.

DIGITAL

Lights when a Dolby Digital encoded signal is detected.

ANALOG

Lights when an analog signal is detected.

DTS

Lights when a source with DTS encoded audio signals is detected.

2 DTS

When the **STANDARD** mode of the receiver is on, this lights to indicate decoding of a DTS multichannel signal.

3 DIGITAL

When the **STANDARD** mode of the receiver is on, this lights to indicate decoding of a Dolby Digital multichannel signal.

4 PRO LOGIC II x

When the **(STANDARD)** Pro Logic II mode of the receiver is on, **PRO LOGIC II** lights to indicate Pro Logic II decoding.

5 VIR. SB

Lights during Virtual surround back processing.

6 DIRECT

Lights when source direct playback is in use. Direct playback bypasses the tone controls and channel levels for the most accurate reproduction of a source.

7

8 ATT

Lights when **INPUT ATT** is used to attenuate (reduce) the level of the analog input signal.

9 SLEEP

Lights when the receiver is in sleep mode.

10 Tuner indicators

MONO

Lights when the mono mode is set using the **MPX** button.

STEREO

Lights when a stereo FM broadcast is being received in auto stereo mode.

TUNED

Lights when a broadcast is being received.

11 Speaker indicator

Shows if the speaker system is on or not. **SP▶A** means the speakers are switched on. **SP▶** means the headphones are connected.

12 Character display

13

14 ADV. Surr. (Advanced Surround)

Lights when one of the Advanced Surround modes has been selected.

15

16 MIDNIGHT

Lights during Midnight listening.

17

18 LOUDNESS

Lights during Loudness listening.

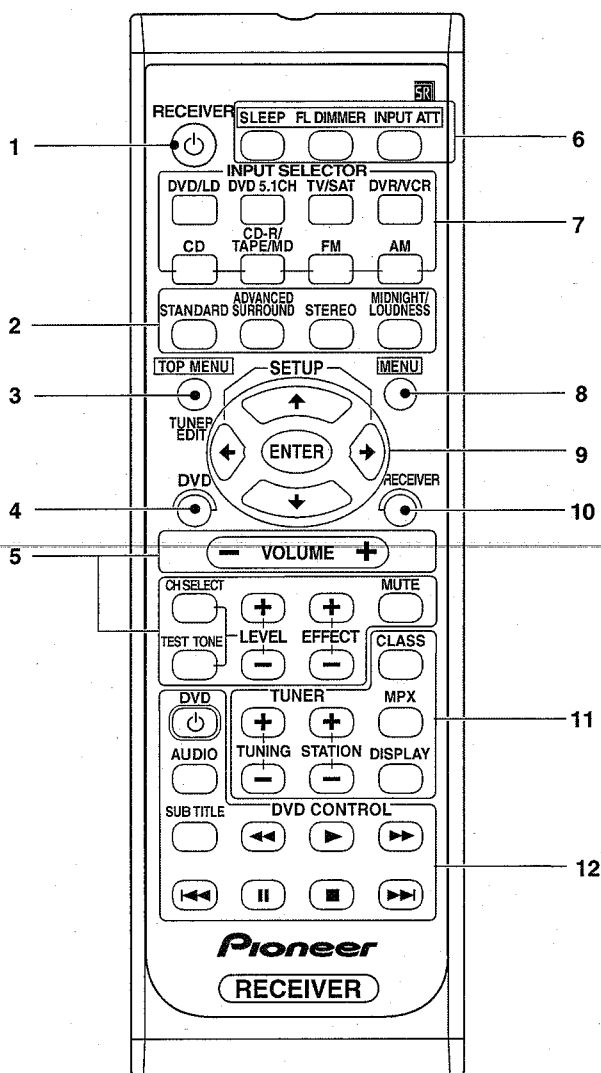
19

20 Master volume level

Shows the overall volume level. **---dB** indicates the minimum level, and **-0 dB** indicates the maximum level.

Depending on your level settings for each channel, the maximum volume can range between **-10 dB** and **-0 dB**.

Remote control



1 RECEIVER

Switches the receiver between standby and on.

2 Listening mode buttons

STANDARD

Press for Standard decoding and to switch between the various Pro Logic II and Neo:6 options.

ADVANCED SURROUND

Use to switch between the various surround modes.

STEREO

Switches between direct and stereo playback. Direct playback bypasses the tone controls and channel levels for the most accurate reproduction of a source.

MIDNIGHT/LOUDNESS

Switches to Midnight or Loudness listening.

3 TOP MENU

Displays the disc 'top' menu of a DVD.

TUNER EDIT

Press to memorize and name a station for recall.

4 DVD

Press to use the DVD controls on the remote.

5 RECEIVER CONTROL buttons

VOLUME +/-

Use to set the listening volume.

MUTE

Mutes/unmutes the sound.

A

B

C

D

E

F

CH SELECT

Selects a speaker when setting up the surround sound of the receiver.

TEST TONE

Sounds the test tone when setting up the surround sound of the receiver.

LEVEL +/-

Adjusts the channel levels.

EFFECT +/-

Adds or subtracts the amount of effect with the advanced surround modes.

6 SLEEP

Use to set the sleep timer.

FL DIMMER

Dims or brightens the display.

INPUT ATT

Attenuates (lowers) the level of an analog input signal to prevent distortion.

7 INPUT SELECTOR buttons

Press to select an input source.

8 MENU

Displays the disc menu of DVD-Video discs. It also displays TV menus.

9 ↑↓←→/ENTER

Use the arrow buttons when setting up your surround sound system.
Also used for DVD menus.

10 RECEIVER

Use to switch to the receiver controls on the remote control. Also used when setting up the surround sound for the receiver.

11 TUNER controls

The **TUNING +/-** buttons can be used to find radio frequencies and the **STATION +/-** buttons can be used to select preset radio stations.

CLASS

Switches between the three banks (classes) of station presets.

MPX

Use to switch between auto stereo and mono reception of FM broadcasts. If the signal is weak then switching to mono will improve the sound quality.

DISPLAY

Switch the display between station preset name and frequency.

12 DVD CONTROL buttons

You can use these buttons to control a Pioneer DVD player connected to your system.

Button What it does

DVD Turns DVD power on/off.

AUDIO Changes the audio language or channel.

SUBTITLE Displays/changes the subtitles on multilingual DVD-Video discs.

▶ Starts/resumes normal playback.

|| Pauses/unpauses a disc.

■ Stops playback.

◀◀ Press to start fast reverse scanning.

▶▶ Press to start fast forward scanning.

◀◀ Skips to the start of the current track or chapter, then previous tracks/chapters.

▶▶ Skips to the next track or chapter.